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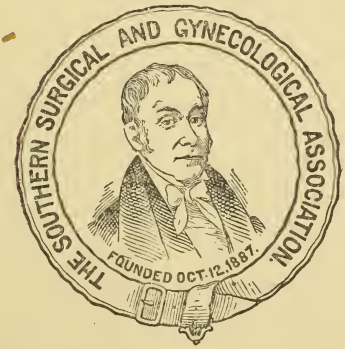

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Founder.—STONE, ISAAC SCOTT, M.D. Gynecologist to Columbia Hospital; Fellow of the American Association of Obstetricians and Gynecologists; Fellow of the British Gynecological Society; formerly Member of the Medical Examining Board of Virginia. Washington, D. C.

1894.—TALLEY, D. F., M.D. Assistant to Chair of Principles and Practice of Surgery, Birmingham Medical College. Birmingham, Ala.

Founder.—TAYLOR, B. W., M.D. Ex-President of the State Medical Association of South Carolina; ex-President of the Columbia Medical Society. Columbia, S. C.

Founder.—TAYLOR, HUGH M., M.D. President of the Virginia Board of Medical Examiners. Richmond, Va.

1895.—THOMPSON, F. D., M.D. Fellow American Association of Obstetricians and Gynecologists. Fort Worth, Texas.

1892.—THOMPSON, J. E., M.D. Professor of Surgery in the University of Texas. Galveston, Texas.

1891.—TIFFANY, LOUIS MCLANE, M.D. Professor of Surgery in the University of Maryland; Fellow of the American Surgical Association. *President*, 1895. Baltimore, Md.

1890.—TOMPKINS, CHRISTOPHER, M.D. Professor of Obstetrics in the Medical College of Virginia. Richmond, Va.

1891.—TRIPPE, RICHARD JEFFERSON, M.D. Ex-President of the Chattanooga Medical Society. Chattanooga, Tenn.

1893.—TUCKER, F. H., M.D. President of the Board of Medical Examiners in Second Judicial District of Texas. San Augustine, Texas.

1889.—TUHOLSKE, HERMAN, M.D. Professor of Surgery, Missouri Medical College. St. Louis, Mo.

1891.—VANCE, AP MORGAN, M.D. Fellow of the American Orthopedic Association. Louisville, Ky.

1893.—VANDER VEER, ALBERT, M.D. Professor of Clinical, Didactic and Abdominal Surgery, Albany Medical College; Fellow of the American Surgical Association; ex-President of the American Association of Obstetricians and Gynecologists. Albany, N. Y.

Founder.—VAUGHAN, BOLIVAR A., M.D. Columbus, Miss.

1891.—WALKER, EDWIN, M.D., Ph.D. Gynecologist, Evansville City Hospital; ex-President of the Indiana State Medical

Society; Fellow of the American Association of Obstetricians and Gynecologists. Evansville, Ind.

Founder.—WATHEN, WILLIAM HUDSON, M.D. Professor of Abdominal Surgery, Obstetrics, and Gynecology in the Kentucky School of Medicine; ex-Chairman of the Section on Obstetrics and Diseases of Women, American Medical Association; ex-President of the Kentucky State Medical Society; Consulting Gynecologist to the Louisville City Hospital; Fellow of the American Gynecological Society. Louisville, Ky.

1895.—WEIST, JACOB ROWLAND, A.M., M.D. Surgeon to St. Stephen's Hospital; Secretary American Surgical Association. Richmond, Indiana.

Founder.—WELLFORD, JOHN SPOTSWOOD, M.D. Professor of Diseases of Women and Children, Medical College of Virginia; President of the Richmond Academy of Medicine. Richmond, Va.

1888.—WESTMORELAND, WILLIS F., M.D. Professor of Surgery, Atlanta Medical College. Atlanta, Ga.

1891.—WHEAT, LOUIS, M.D. Richmond, Va.

1890.—WILSON, HENRY PARKE C., M.D. Ex-President of the Medical and Chirurgical Faculty of Maryland and of the Baltimore Academy of Medicine, and of the Baltimore Gynecological and Obstetrical Society; Surgeon to the Hospital for Women, of Maryland; Consulting Gynecologist to St. Agnes' Hospital; Consulting Surgeon to the Johns Hopkins Hospital; Fellow of the British Medical Association and of the British Gynecological Society; ex-President of the American Gynecological Society. Baltimore, Md.

Founder.—WILSON, J. T., M.D. Ex-President of the North Texas Medical Association. *Vice-President*, 1891. Sherman, Texas.

1893.—WOOLF, J. T., M.D. New Orleans, La.

1891.—WYETH, JOHN ALLAN, M.D. Professor of Surgery, New York Polyclinic; Consulting Surgeon to St. Elizabeth's Hospital; Visiting Surgeon to Mt. Sinai Hospital and Polyclinic Hospital; Honorary Member of the Texas State Medical Association; ex-President of the New York Pathological Society. New York, N. Y.

CONSTITUTION.

ARTICLE I.

The name of this Association shall be The Southern Surgical and Gynecological Association.

ARTICLE II.

The object of this Association is to further the study and practice of surgery and gynecology among the profession of the Southern States.

ARTICLE III.

This Association shall adopt and conform to the Code of Ethics of the American Medical Association.

ARTICLE IV.

Section 1. Any reputable physician, who practises surgery or gynecology, and who is vouched for by two members of the Association, and recommended by the Council, shall be eligible to membership in this body.

Sec. 2. The honorary members shall not exceed ten in number, and shall enjoy all the privileges of other members, excepting to vote or hold office, but shall not be required to pay any fee.

ARTICLE V.

Section 1. The officers of this Association shall be a President, two Vice-Presidents, a Secretary, a Treasurer, and a Council, elected by ballot, without nomination.

Sec. 2. The President and Vice-Presidents shall be elected for one year, and the President shall not be eligible for re-election at any time; the Secretary and Treasurer, each, for five years; and the Council as provided for in the By-laws.

ARTICLE VI.

SECTION 1. It shall be the duty of the President to preside at all meetings of the Association; to give the casting vote; to see that the rules of order and decorum be properly enforced in all deliberations of the Association; to sign the approved proceedings of each meeting, and to approve such orders as may be drawn upon the Treasurer for expenditures ordered by the Association.

SEC. 2. In the absence of the President the first Vice-President shall preside, and in his absence the second Vice-President shall preside.

SEC. 3. In the absence of all three, the Association shall elect one of its members to preside *pro tem.*

SEC. 4. It shall be the duty of the Secretary to keep a true and correct record of the proceedings of the meetings; to preserve all books, papers and articles belonging to the archives of the Association; to attest all orders drawn on the Treasurer for moneys appropriated by the Association by the seal of the Association; to keep the account of the Association with its members; to keep a register of the members, with the dates of their admission and places of residence. He shall collect all moneys due from the members and pay to the Treasurer, taking his receipt for the same. He shall report such unfinished business of previous meetings as may appear on his books requiring action, and attend to such other business as the Association may direct. He shall also supervise and conduct all the correspondence of the Association, and be chairman of the Publishing Committee.

SEC. 5. It shall be the duty of the Treasurer to keep a correct record of all moneys received from the hands of the Secretary, giving his receipt for the same; pay them out by order of the Association as indorsed by the President and attested by the seal in the hands of the Secretary.

SEC. 6. It shall be the duty of the President of the Association to appoint a Committee of Finance, consisting of three members of the Association, whose duty it shall be to examine the books of the Secretary and Treasurer, and report on the same at the next session of the Association.

ARTICLE VII.

Vacancies occurring in the officers of the Association shall be filled by appointment of the President until the next meeting. He shall also have the appointment of all committees not otherwise provided for.

ARTICLE VIII.

This Constitution shall take effect immediately from the time of its adoption, and shall not be amended except by a written resolution, which shall lie over one year, and receive a vote of two-thirds of the members present.

ARTICLE IX.

Any member who for three consecutive years fails to attend the meetings shall be dropped from the roll of membership.

BY-LAWS.

ARTICLE I.

The Southern Surgical and Gynecological Association shall meet annually on the second Tuesday of November at 10 A.M., at such place as may be designated by the preceding meeting.

ARTICLE II.

The members present shall constitute a quorum for business.

ARTICLE III.

The annual dues of each member shall be $10, paid in advance.

ARTICLE IV.

The usual parliamentary rules governing deliberative bodies shall govern the business workings of this Association.

ARTICLE V.

All questions before the Association shall be determined by a majority of the votes present.

ARTICLE VI.

The President shall deliver an annual address at each meeting of the Association.

ARTICLE VII.

The Secretary of the Association shall receive, at each annual Session, a draft from the President, drawn on the Treasurer, for the sum of $100 for services rendered the Association, and to this shall be added the necessary expense incurred in the discharge of his official duties.

ARTICLE VIII.

It shall be the duty of the Secretary, one month prior to the annual meeting, to notify by circular letters the members of the Association, and urge their attendance.

ARTICLE IX.

The authors of all essays shall notify the Secretary, six weeks prior to the meeting, of the titles of their essays, so that they may be incorporated in the circular letter to the members.

ARTICLE X.

COUNCIL.

The Council shall consist of five members; and of those elected at the primary meeting, the first shall serve five years, the second four, the third three, the fourth two, and the fifth one year; so

that subsequently one member of the Council shall be elected annually to serve five years. The President and Secretary shall be *ex-officio* members of the Council.

This Council shall organize by electing a Chairman and Secretary, and shall keep a record of its proceedings.

The duties of this Council shall be—

1. To investigate applications for membership and report to the Association the names of such persons as are deemed worthy.

2. To take cognizance of all questions of an ethical, judicial, or personal nature, and upon these the decision of the Council shall be final; *provided,* that appeal may be taken from such decision of the Council to the Association, under a written protest, which protest shall be sustained by the Association, and the matter shall then be referred to a special committee, with power to take final action.

3. All motions and resolutions before the Association shall be referred to the Council without debate, and it shall report by recommendation at as early an hour as possible.

ARTICLE XI.

The following are the standing committees of the Association to be filled by the President and to report at the next annual meeting subsequent to their appointment, viz.: Committee of Arrangements and Committee of Publication. The Committee of Publication shall consist of three members, one of whom, the Secretary of the Association, shall also be the chairman of the said committee. The Committee of Arrangements shall consist of five members.

ARTICLE XII.

The Committee of Publication shall have full power to omit from the published TRANSACTIONS, in part or in whole, any paper that may be referred to it by the Association, unless specially instructed to the contrary by the Association, which will be determined by vote.

ARTICLE XIII.

Any member failing to pay his dues for more than one year shall be dropped.

ARTICLE XIV.

Every physician making application for membership shall present with his application a paper on some surgical or gynecological subject.

ARTICLE XV.

No paper shall be read before this Association which does not deal strictly with a subject of surgical or gynecological importance.

ARTICLE XVI.

No paper read before the Association shall be published in any medical journal or pamphlet for circulation, as having been read before the Association, without having received the indorsement of the Committee of Publication.

ARTICLE XVII.

The reading of papers shall be limited to twenty minutes each, except by permission of the Association.

MINUTES OF THE PROCEEDINGS

AT THE

EIGHTH ANNUAL MEETING

OF

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION,

HELD IN

HOTEL SHOREHAM,

Washington, D. C.,

NOVEMBER 12, 13, AND 14, 1895.

EIGHTH ANNUAL MEETING.

The following-named members were present:

BOSHER, L. C.	Richmond, Va.
BOVEÉ, J. W.	Washington, D. C.
BROWN, BEDFORD	Alexandria, Va.
CARTLEDGE, A. M.	Louisville, Ky.
COBB, W. H. H.	Goldsboro, N. C.
CROW, W. A.	Atlanta, Ga.
DAVIS, J. D. S.	Birmingham, Ala.
DAVIS, W. E. B.	Birmingham, Ala.
DEAN, G. R.	Spartanburg, S. C.
DOUGLAS, RICHARD	Nashville, Tenn.
EARNEST, J. G.	Atlanta, Ga.
ENGELMANN, GEO. J.	St. Louis, Mo.
EVANS, JAMES	Florence, S. C.
FORTIER, S. M.	New Orleans, La.
FRY, HENRY D.	Washington, D. C.
GASTON, JAS. McF.	Atlanta, Ga.
GRANT, H. H.	Louisville, Ky.
HAGGARD, W. D.	Nashville, Tenn.
*HENRY, J. T.	Chester, S. C.
JOHNSON, JOS. TABER	Washington, D. C.
JOHNSTON, GEO. BEN	Richmond, Va.
KELLY, H. A.	Baltimore, Md.
KOLLOCH, CORNELIUS	Cheraw, S. C.
LEWIS, E. S.	New Orleans, La.
McMURTRY, L. S.	Louisville, Ky.
MARCY, H. O.	Boston, Mass.
NASH, H. M.	Norfolk, Va.
NELSON, H. T.	Charlottesville, Va.
NOBLE, GEO. H.	Atlanta, Ga.
POTTER, W. W.	Buffalo, N. Y.

* Deceased.

REED, CHAS. A. L. . . .	Cincinnati, O.
ROBINSON, W. L. . . .	Danville, Va.
ROHÉ, GEO. H.	Catonsville, Md.
ROSS, GEO.	Richmond, Va.
STONE, I. S.	Washington, D. C.
TAYLOR, HUGH M. . . .	Richmond, Va.
TIFFANY, L. M.	Baltimore, Md.
TOMPKINS, CHRISTOPHER .	Richmond, Va.
VANDER VEER, A. . . .	Albany, N. Y.
WESTMORELAND, W. F. .	Atlanta, Ga.
WILSON, H. P. C. . . .	Baltimore, Md.
WYETH, JOHN A. . . .	New York, N. Y.

Letters and messages of regret were received from a number of the members who were unable to attend the meeting.

First Day—*Tuesday, November* 12, 1895.

Morning Session.—The meeting was called to order by the President, Dr. Louis McLane Tiffany, of Baltimore, Md., at 10 a.m.

Dr. S. C. Busey, of Washington, D. C., was introduced, and delivered the following

ADDRESS OF WELCOME.

Mr. President and Members of the Southern Surgical and Gynecological Association: Through the partiality of the distinguished Chairman of your Committee of Arrangements, I am here to offer the fraternal greetings of the medical profession of the District of Columbia at this first meeting of your Association north of the river Potomac. This invasion is the expression of that friendship and comity which makes kindred of us all, and is significant only in that it is a voluntary reunion upon common territory of the citizens of a common country, who are engaged in a common pursuit characterized by the spirit of Christian benevolence and philanthropy.

In one respect we are your guests, invited by your presence here to participate in the consideration of the subjects set forth

in the programme, and to co-operate with you in promoting the advancement of a science which has for its highest aims the amelioration of suffering and the saving and prolongation of human life.

I need not, then, tell you of the pleasure it gives me to bid you welcome to the city of this nation which I have seen grow from its village appointments to the proportions and grandeur of the nation's metropolis; but I must give expression to the cordiality and fraternity which my juniors in the practice of medicine in this city have bidden me to offer you on this their first and only opportunity to congratulate this Association on its success and achievements in the recent past.

The population of this city is largely cosmopolitan, and more closely representative of the population of the country at large than that of any other city, and those of you who come from the tropical regions of the South, as well as those from the border States along the course of the historical line of Mason and Dixon, will find here the representative types of congenial manhood and responsive hospitality from every section of the national domain, mingling and commingling in one homogeneous community, irrespective of local and State nativities and provincial customs and characteristics, and engaged on equal terms in all the relations and pursuits of business employment and social life. There are, of course, cliques, coteries, clans, social circles, exclusive factions, gangs, and cabals of good and evil import, but not banded by State and section affinities. But the truth of history compels me to add that its representative character would be incomplete without such slums as Swampoodle, Murder Bay, Hell's Bottom, and Hooker's Division, localities where vice and crime, in all their loathsome hideousness, found domicile and protection, but which are now rapidly disappearing before the energy, thrift, and progress of a cosmopolitan and law-abiding population.

In a population of two hundred and seventy thousand there are one hundred and eighty churches, one hundred and three public school buildings, with an attendance of forty-four thousand pupils; four universities in successful operation, two more in course of establishment, and another in contemplation. Five medical and four law schools, with annually increasing numbers of matriculates; five general and two special hospitals (with accommodation for seven hundred patients), two foundling hos-

pitals, one emergency hospital and one for incurables, several public dispensaries, one deaf-mute and blind asylum, and one insane asylum. There are seventy well-established charitable and reformatory institutions providing for the care of the indigent, helpless, sick, injured, and wayward, of which thirty-five do not receive any public aid, but have been founded and are supported by the munificence of philanthropic citizens and residents of the Federal territory. There is not one gambling-house "known to the authorities," but there are five hundred and eighty licensed saloons, far too many in a population so abundantly supplied with eleemosynary, religious, and educational institutions, which in some measure is due to inadequate legislation by Congress. Thus, notwithstanding our dependence upon a legislature without representation, the citizens and private property-holders of the Federal territory exhibit most remarkable and creditable progress in all those qualities and instrumentalities of enlightened and Christian civilization, which contribute so much to the well-being of the human race, and have made this the foremost nation on the globe.

You must excuse the interpolation in this connection of the statement that in this District the death-rate has gradually diminished in the past fifteen years, and the average longevity of decedents has increased. Among the whites four years nine months and nineteen days, having risen from thirty-two years and three days in 1881 to thirty-six years nine months and nineteen days in 1895; and among the colored from twenty years ten months and eleven days in 1881 to twenty-five years eight months and twenty-seven days in 1895. These figures exemplify the maxim of Prof. Pierce, that "virtue, like intellect, doubtless tends to longevity." If time permitted I might, with equal precision, show that this population is characterized by three elements of strength of a people—"longevity, fecundity, and vigor."

In another aspect you are our guests, and in behalf of the profession and of the community at large I welcome you to the only city in this great and populous country wherein each one of you can claim and enjoy the privileges and immunities vested in common citizenship, insomuch as each one and all of you, in some measure, hold in common with the many millions of citizens, proprietary rights and sovereign power. That you may more fully estimate and appreciate the magnitude of such pre-

rogatives, let me tell you that in the area of 69.245 square miles covering the territory of the District of Columbia, the Government owns four thousand and ninety-four acres of land, exclusive of the streets, avenues, and alleys of the city, and in this city property valued at $201,711,959, being $10,294,155 in excess of the value of private property. To this valuation must be added the value of the Government lands lying outside of the limits of the city, which comprise three thousand three hundred and eighty-four acres, which, with the improvements thereon, is estimated at $8,500,000. The aggregate of the Government realty in the District of Columbia, including the streets, avenues, and alleys of this city, but not including the enormous tract of reclaimed Potomac River flats, is seven thousand and seven hundred acres.

And now, if you will go with me through these streets and avenues, you will see these properties represented in magnificent public buildings, decorated and improved parks and reservations. But this great Government has not limited its possessions and expenditures in this District to the acquisition of realty, the construction of public buildings, and improvement of parks, but has been a generous though inadequate contributor to the development and advancement of various branches of science; in the establishment and support of bureaux and department of science, art, and literature, comprising architecture, astronomy, astrophysics, animal industry, including infectious disease and pathology of animals, dairy investigations, and zoölogical and biochemic laboratories; agrostology, biology, botany, bibliography, climatology, forestry, education, entomology, ethnology, hydrography, hydrometry, hygiene, ichthyology, international exchange, meteorology, mammology, museum, law, medicine, ornithology, ordinance, vegetable pathology and physiology, pomology, soils and foods, weights and measures, quarantine, bacteriology, pathology, and zoölogy.

I cannot detain you with a statement in detail of the operations of these scientific foundations, not as yet complete in any department, but steadily progressing toward that standard of excellence and usefulness, which will, in the near future, make the political home of the nation the centre of science, literature, and art. But I can assert that in learned and scientific institutions, bureaux, departments, and great national libraries, with

their corps of experts in the various branches of science, this city offers opportunities not excelled in any city in this country.

And now, coming closer to that branch of science which most concerns you, I must remind you that the same spirit which has given impetus to new thought and to new and enlarged conceptions of scientific research has established in this city a medical library greater in number and value of volumes than any similar library in the world, and an anatomical and pathological museum unsurpassed in the variety of its collection. The publication of the *Index Catalogue* in connection with this magnificent library will contribute more toward the higher education of the medical profession than any single act of any nation on the face of the globe. Then, too, the Government has established a museum of hygiene, a national quarantine, both important adjuncts of preventive medicine, which will continue to grow in usefulness to the government and to the people at large.

These foundations have been developed under the fostering care of a munificent Government. It may be that it needed these establishments to fulfil its delegated functions, and is compelled to secure the services of skilled medical men to superintend their proper administration; nevertheless, even admitting this necessity to be the primary cause of their foundation, it in no manner impairs their value to the profession, and the duty is imposed upon us to utilize them for the common good, and invites us to widen the scope of such endowments to the end that we and the people may realize the full measure of their usefulness.

I solicit your aid and co-operation in our effort to secure the protection of our people from the horde of impostors and charlatans which you have driven from your borders by the enactment and enforcement of medical practice laws, and which has made the District of Columbia a common rendezvous where the most atrocious methods of the charlatan and mercenary impositions are openly and flagrantly committed to the wrong, injury, and robbery of its citizens. You represent the most influential and intelligent class of suffragists, for whose aid on the hustings and at the polls we plead.

To state the deplorable condition of this District fully and broadly, there are five medical schools and several medical societies chartered by acts of Congress, or under the general incorporation law, authorized and empowered to license persons to practice

the art and science of medicine without any uniform, and by some without any, standard of qualification beyond the ability and willingness of the applicant to pay the required fees or give promissory notes for such payment; and under the provision of the general incorporation law any dozen of persons can obtain a charter upon payment of the fee for recording the same, authorizing them as a body corporate to confer the degree of M.D. at their pleasure and will. Such is the status of this Federal territory, which is under the exclusive jurisdiction of the highest tribunal of legislation in the land, made up of Representatives and Senators from forty-one States and Territories, which have enacted medical practice laws for the protection and welfare of their citizens. Take these facts home with you and re-echo them throughout the length and breadth of the land, that such criminal neglect, not less disgraceful and scandalous than the slums of vice, may not continue to afflict the citizens of the Federal territory.

Pardon, in conclusion, the invocation of one who has nearly completed a half century of service in the practice of medicine, to assert the highest prerogatives of the science of medicine, and by unity of effort enforce them in the interest of and for the welfare of mankind, in that governors, legislative bodies, town councils, and all others in authority may come to know, in the near future, that in preventive and remedial medicine truth and science must dominate whim, caprice, charlantry, and mercenary adventure.

President Tiffany responded to the address of welcome as follows:

Gentlemen: The members of the Southern Surgical and Gynecological Association have chosen Washington as their place of meeting this year, not only because of the museum and library and hospitals, which have been referred to by Dr. Busey, but mainly because the Association was quite sure of meeting in the District of Columbia a learned and courteous branch of our noble profession. In having chosen Dr. Busey as the mouthpiece of the profession of the District of Columbia, we think that the choice was wisely made, and we thank him for the words of welcome which we have heard. He has given utterance to that which is kind and without censure save when most deserved. Again, I

thank the District of Columbia, in the name of the Association, for the address of welcome to which we have listened.

Dr. Joseph Taber Johnson, Chairman of the Committee of Arrangements, made the following report:

REPORT OF THE CHAIRMAN OF THE COMMITTEE OF ARRANGEMENTS.

There will be a reception given at the Arlington Hotel by the Washington Obstetrical and Gynecological Society, to which you are all invited.

Some surgical work will be done during the intervals between the sessions, and those interested in this particular kind of work are invited to witness the operations.

On Wednesday evening the Association is invited by the Medical Society of the District of Columbia, of which Dr. Busey is President, to attend their weekly meeting, when a paper will be read by Dr. Cooper on "Stomach Infection as a Prime Factor in the Mortality of Childhood."

A reception will be given at my house, to which you are all cordially invited.

On Thursday at 1 o'clock, at the Columbian Hospital, you are invited to witness a hysterectomy for the removal of a large fibroid tumor by Dr. Boveé, of this city.

Your Committee will make other announcements during the sessions.

Papers were then read as follows:

1. "Personal Experience in the Treatment of Stab-wounds of the Intestines and Peritoneum," by Dr. Bedford Brown, of Alexandria, Va.

The discussion was opened by Dr. Douglas, and continued by Drs. Reed, Evans, Vander Veer, Nelson, Ross, W. E. B. Davis, John D. S. Davis, and, in closing, by the essayist.

2. "Report of Seven Cases in Abdominal Surgery in which the Murphy Button was Applied," by Dr. A. Vander Veer, of Albany, N. Y.

3. "Resection and Intestinal Anastomosis," by Dr. H. Horace Grant, of Louisville, Ky.

These two papers were then discussed jointly by Drs. Reed,

Mathews, Cartledge, W. E. B. Davis, and, in closing, by the essayists.

4. "Surgical Interference in Rectal Disorders," by Dr. J. McFadden Gaston, Atlanta, Ga.

Discussed by Drs. Mathews, Nash, and Gaston.

On motion, the Association adjourned until 2.30 P.M.

FIRST DAY—*Tuesday, November* 12, 1895.

Afternoon Session.—The Association reassembled at 2.30 o'clock, and was called to order by the President.

5. "Cancer of the Pregnant Uterus," by Dr. George H. Noble, of Atlanta, Ga.

Discussed by Drs. Kelly and Vander Veer.

6. "Hysterectomy for Fibroids," by Dr. E. S. Lewis, of New Orleans, La.

7. "Technique of Supra-vaginal Hysterectomy," by Dr. Howard A. Kelly, of Baltimore, Md.

8. "Operations for Fibroid Tumors by Hysterectomy," by Dr. Joseph Taber Johnson, of Washington, D. C.

These papers were discussed jointly by Drs. Marcy, Nelson, Douglas, W. E. B. Davis, Stone, Vander Veer, Cartledge, Lewis, Kelly, and Johnson.

9. "Hysterectomy for Puerperal Sepsis," by Dr. A. M. Cartledge, of Louisville, Ky.

Discussed by Drs. Reed, Wilson, Nelson, Noble, McMurtry, Evans, Marcy, Rohé, and, in closing, by the essayist.

On motion, the Association adjourned until Wednesday morning, 9.30 o'clock.

SECOND DAY—*Wednesday, November* 13, 1895.

Morning Session.—The Association met at 9.30 o'clock, and was called to order by the President.

10. "Splenectomy Statistically Considered, with Report of a Case," by Dr. Richard Douglas, of Nashville, Tenn.

Discussed by Drs. Johnston, Stone, Robinson, Wyeth, Price, Nelson, Tiffany, Lewis, Cartledge, and, in closing, by the author of the paper.

11. "Management of Cases which have Recovered from Ap-

pendiceal Abscess in which the Appendix was not Removed," by Dr. John D. S. Davis, of Birmingham, Ala.

Discussed by Drs. McMurtry, Price, Westmoreland, Nash, Cartledge, Douglas, Kollock, Wyeth, Nelson, Marcy, Grant, Vander Veer, W. E. B. Davis, Robinson, Brown, and, in closing, by the essayist.

At the conclusion of the discussion on Dr. Davis's paper Dr. Wyeth arose and said: In view of the fact that this paper has elicited such a great amount of interest and discussion, I move that the President appoint a committee of four gentlemen of known experience, whose duty it shall be to write and read at the next meeting papers upon the subject of appendicitis; no paper to take more than thirty minutes in its reading, and that one member of the committee shall be a general surgeon (not the mover of the resolution), one an abdominal surgeon or gynecologist, one a medical practitioner, and the fourth an invited guest, and that we set one morning for the reading and discussion of these papers, no other business being transacted during that session.

Seconded and carried.

On motion, the Association adjourned until 2 P.M.

SECOND DAY—*Wednesday, November* 13, 1895.

Afternoon Session.—The Association reassembled, pursuant to adjournment, and was called to order by the President.

12. "Dr. J. Marion Sims and His Work," by Dr. John A. Wyeth, of New York.

At the conclusion of Dr. Wyeth's address, the President called for reminiscences of Dr. Sims, and interesting remarks were made by Drs. Robinson, Wilson, Nelson, Marcy, Engelmann, Kollock, Vander Veer, Gaston, Tiffany, and Westmoreland. Dr. Kollock moved that 500 copies of the address be printed and distributed among the members of the Association and their friends.

Carried.

Dr. Marcy, at this juncture, arose to a question of personal privilege. It seemed to him fitting that the Association should take some notice of another great Southerner who had done so much along kindred lines, and who had just died. He referred to Dr. Robert Battey. He therefore moved, without further re-

marks, that the Secretary be instructed to send a letter of sympathy to the family of the deceased, and that a record of the same be published in the TRANSACTIONS.

Dr. W. E. B. Davis said that while Dr. Battey was not a member of the Association and had not given it his influence in the South, still he (Battey) had done excellent work, and would therefore second the motion.

After some remarks by Dr. Nelson, of Chicago, relating to a personal interview which he had had with Dr. Battey shortly before his death, the motion was put and carried.

Dr. Ernest S. Lewis, of New Orleans, La., First Vice-President, then took the chair and the President delivered his address.

Dr. Gaston moved that a vote of thanks be extended to the President for his interesting and able address.

Carried.

13. "Comparative Frequency of Stone in the White and Negro Races," by Dr. George Ben Johnston, of Richmond, Va.

Discussed by Drs. Evans, Robinson, W. E. B. Davis, John D. S. Davis, Nelson, and, in closing, by the author of the paper.

14. "Report of Cases of Cystotomy for Stone," by Dr. Willis F. Westmoreland, of Atlanta, Ga.

Discussed by Drs. Robinson, Vander Veer, Nash, Wyeth, John D. S. Davis, Marcy, Lewis, and, in closing, by the essayist.

On motion, the Association adjourned until Thursday morning, 9.30 o'clock.

THIRD DAY—*Thursday, November* 14, 1895.

Morning Session.—The Association met at 9.30 A.M., and was called to order by the President.

15. "Abdominal Pregnancy," by Dr. Cornelius Kollock, of Cheraw, S. C.

16. "Report of a Case of Extra-uterine Pregnancy," by Dr. John T. Henry, of Chester, S. C.

These papers were discussed jointly by Drs. Marcy, Johnson, Nelson, Stone, Wilson, Robinson, Engelmann, Taylor, Tiffany, W. E. B. Davis, and, in closing, by Dr. Henry.

President Tiffany then read the following letter, which is self-explanatory:

NEW YORK CITY, November 13, 1895.

MY DEAR DR. TIFFANY: I had all my arrangements made to go to Washington to-night at 12.15, and the tickets are now before me on the table. I was extremely desirous to present the gavel to the Southern Surgical and Gynecological Association in person, and had made all my plans to do so. At 10 o'clock I was sent for to see an old patient of mine who is very ill, and I was obliged to go and see her. I took my bag along and went from there to the station in Jersey City, but was just too late for my train. I did not say very much, except to myself, when I saw the train going just too fast to be able to get aboard.

The gavel will go to you by express first thing in the morning. Will you kindly read this letter to the members of the Association, and let them know how very disappointed I am at not being there myself. The gavel is presented to the Association with my sincerest wishes for its future welfare, knowing that all the members of the profession in the South honor, revere, and love the name and memory of the man that died twelve years ago to-day.

Believe me, my dear doctor,

Yours most sincerely,

H. MARION SIMS.

The President then exhibited the gavel to the Association. It bore the inscription: "Presented to the Southern Surgical and Gynecological Association by H. Marion Sims, November 13, 1895." On another portion of the gavel were written these words: "This gavel was made from a leg of the operating-table used by Dr. J. Marion Sims in his office for twelve years preceding his death."

The President thought it would be eminently proper that the gavel be first used by one of the ex-Presidents of the Association who was also a native of some Southern State, and who enjoyed a personal acquaintance with Dr. Sims. He therefore called upon Dr. Kollock to use it first.

Dr. Kollock, in accepting the gavel from the President, said: "I feel proud to be associated with Dr. Sims in any manner. I had a personal acquaintance with him. I knew him well. I loved him as much as I respected him, and I regarded him as one of best men I ever knew. Take him all in all, we shall never look upon his like again."

Dr. Wilson, of Baltimore, moved that the Secretary send to

Dr. Sims, the giver, the thanks of the Association for the gift, and that "we value it beyond any other possession that we have."

Unanimously carried.

17. "The Technique of the Buried Animal Suture," by Dr. Henry O. Marcy, of Boston.

Discussed by Dr. John D. S. Davis, and, in closing, by the essayist.

The following papers were read by title:

"A Case of Gunshot-wound of the Brain; Removal of the Bullet; Recovery," by Dr. W. E. Parker, of New Orleans, La.

"Uninterrupted Anæsthesia in Face and Mouth; Operations," by Dr. Edmond Souchon, of New Orleans, La.

"Vaginal Incision and Drainage in Pelvic Inflammation," by Dr. J. W. Long, of Richmond, Va.

"Endometritis," by Dr. James T. Jelks, of Hot Springs, Ark.

"Is Hysterectomy for Puerperal Infection Justifiable?" by Dr. R. R. Kime, of Atlanta, Ga.

"The Surgery of the Prostate Gland," by Dr. George Foy, of Dublin, Ireland.

"Some Methods in Hysterectomy," by Dr. Joseph Price, of Philadelphia, Pa.

"Surgical Treatment of Inguinal Hernia," by Dr. C. Deaderick, of Knoxville, Tenn.

"Surgery of the Biliary Ducts," by Dr. W. E. B. Davis, of Birmingham, Ala.

Dr. Engelmann then read the report of the Council, as follows:

At a meeting of the Council of the Association, held in the parlor of the Shoreman Hotel, the following action was taken: We recommend for membership

M. C. McGannon	Nashville, Tenn.
S. M. Fortier	New Orleans, La.
John L. Dawson	Charleston, S. C.
A. H. Buckmaster . . .	Univ. of Va.
R. R. Kime	Atlanta, Ga.
Charles Deaderick . . .	Knoxville, Tenn.
Henry D. Fry	Washington, D. C.
Jacob R. Weist	Richmond, Ind.
F. D. Thompson	Fort Worth, Texas.
J. W. Boveé	Washington, D. C.

The following-named gentlemen, after thorough discussion and due consideration from every point of view, were recommended as officers for the ensuing year:

President.—Dr. E. S. Lewis, of New Orleans, La.

First Vice-President—Dr. Joseph Taber Johnson, of Washington, D. C.

Second Vice-President—Dr. Richard Douglas, of Nashville, Tenn.

Treasurer—Dr. A. M. Cartledge (to fill vacancy), of Louisville, Ky.

To fill vacancy as member of Council, Dr. George J. Engelmann, of Boston.

Place of meeting. Nashville, Tenn., second Tuesday in November, 1896.

Chairman of Committee of Arrangements—Dr. W. D. Haggard, of Nashville, Tenn.

It was recommended that the President-elect be empowered to appoint such delegates as he may desire to represent this Association at the second meeting of the International Congress of Obstetricians and Gynecologists, which meets in Geneva in September, 1896.

It was further recommended that a memorial in commemoration of the life and services of Dr. Paul F. Eve be prepared and read at the next meeting of the Association by Dr. Richard Douglas.

It was further recommended that in view of the high appreciation in which the Council held the recommendations of the retiring President, that the President-elect shall provide for carrying into effect the resolution introduced by Dr. Wyeth on the subject of appendicitis, which complies with the recommendation of our retiring President.

It was further recommended that in future the time for the reading of the President's Address shall be at 12 o'clock M. on the second day of the meeting.

On motion of Dr. John D. S. Davis, the entire report of the Council was adopted, and the Secretary instructed to cast the ballot for the election of the officers and members mentioned therein, which he did, and they were declared elected.

Dr. Engelmann offered the following resolutions:

Resolved, That the thanks of the Southern Surgical and Gyne-

cological Association be tendered to the Fellows of the Washington Obstetrical and Gynecological Society, as well as to the members of the medical profession in this city, for the hospitality extended to the Association.

Resolved, That the thanks of the Association be extended to the Committee of Arrangements; to the Hotel Shoreman for the very courteous and generous manner in which they have treated us, and particularly for the hall in which our sessions were held.

Seconded and unanimously adopted.

The retiring President then appointed Drs. Kollock and Engelmann to escort the President-elect, Dr. Lewis, to the Chair.

Dr. Tiffany, in retiring from the presidency, said: It gives me the greatest pleasure to present to the Association one of the most eminent surgeons whom it is our fortune to have with us, and whose only drawback is his own modesty.

Dr. Lewis, in accepting the presidency, said:

Gentlemen: There are moments in a man's life when it is proper for him to keep silent. This is an occasion of that character. I feel that I cannot express my appreciation of the compliment which has been paid me in language to meet the occasion. I can only thank you, and hope that you will not be disappointed in your choice. (Applause.)

Dr. Stone moved that a vote of thanks be extended to the retiring President for his courteous, able, and efficient services during the past year.

Unanimously carried.

On motion, the Association adjourned to meet in Nashville on the second Tuesday in November, 1896.

W. E. B. Davis, M.D.,
Secretary.

ANNUAL ADDRESS OF THE PRESIDENT.

By L. McLane Tiffany, M.D.,
Baltimore.

For the honor that you have done me in making me your presiding officer, I offer my most earnest thanks, well recognizing at the same time my inability to do justice to the duties of the position. The apportionment of time for discussion, however, is not the only matter of weight to be attended to by the incumbent of the presidential chair, since it is necessary that he run the risk of incurring the displeasure of the Association in its entirety or of many Fellows individually by the pret sentation of an address, announced long beforehand as due a- a stated hour on a stated day. Now, it is not within the bounds of human possibilities that all hearers will be pleased with the views presented, however well they may be concealed, the words, not the hearers, in elaborate verbiage, the pill will remain a pill still, be it ever so well and thickly coated ; so that perhaps the best thing about an annual address for the Fellows is, that the hour and date being clearly known, it becomes possible to follow a notable Biblical example and find a pressing engagement elsewhere, which cannot be put off.

To the reader of the address, unfortunately, there is no such escape, he must hear it, fervid or tedious, prosy or poetic, intelligent or dull, earnest or indifferent, every word duly freighted must be properly received, for the words make their exit from his own mouth, yet it is necessary to say something. Now, there are annual addresses and annual addresses, and, judging from the standpoint of one who has listened to a not inconsiderable number, they may be divided into certain

groups, for instance, the laudatory, in which the speaker finds that while there may be and perhaps are certain minor and easily explained drawbacks, yet looking at the matter in a large and many-sided manner, there is no doubt that the Association addressed is just a little in advance of anything of a similar kind to be found anywhere, and it goes without saying that the presiding officer of such an Association must indeed be a very noteworthy personage. This last deduction is left to the intelligence of the listener. Then, the exculpatory, in which shortcomings are condoned rather than successes lauded; but the shortcomings referred to are usually those afflicting other members of the medical profession, not one's self, and the addresses will be entitled, "Things to let your neighbor do," "Surgical Vivacities, by an observing Pharisee," or some heading of similar import. Next, the historical; in the opening pages of which Hippocrates, Galen, and the Asclepiadæ will figure, the listener being gently brought down by easy stages to the present time, a very un-Darwinian descent of man. Next, an essay on some particular subject with which the author is familiar, having availed himself of special opportunities or carried on original research. This class of discourse is apt to be valuable, for it may present facts and observations heretofore not noted, and always mirrors the medical practice of the day as seen by the eyes of an active participant therein.

In this Association's first volume of TRANSACTIONS the President says that it, the Association, did not spring voluntarily into existence, but was the outgrowth of necessity, and is the embodiment of unknown power; further on he says that the Association holds out its hands to the industrious workers in the field of scientific research. Article II. of the Constitution says, "The object of this Association is to further the study and practice of surgery and gynecology among the profession of the Southern States," so we may add with propriety and truth to Article II. the words of the first President and learn that the reason for our existence is that we further the study and practice of surgery and gynecology among the profession of the Southern States, by means of industrious work

in the field of scientific research, and the converse of this is clear, that if we do not do it we forfeit our right to exist.

Our aim then is twofold : First, do advanced work ourselves ; second, bring it to the notice of, and aid, our brethren. The one complementary to the other, neither complete alone, yet attaining full fruition when associated.

1. Now, I take it that a medical society brings men together for the interchange of ideas and reciprocal criticism ; that undue asperities by mutual attrition may be smoothed away, generous emulation excited, and the truth reached, the views presented being those formed by their holder from his own experience and his personal observation. One's experience extends over a small area, but by associating such experiences and observations the application of a certain observation to a large area becomes possible and may be expedient, medical knowledge thereby being so much the more increased.

Therefore the function of a medical society is primarily local, its members reporting their own opinions formed from their own practice ; after local topics have been cleared up and made plain, it may be well to generalize. It would be very unwise to go to Minnesota to learn how to grow cotton, or to Louisiana to gain information concerning the mining of coal, or to Colorado for advice about rice culture, yet each place named can contribute valuable knowledge concerning its own immediate interests. Hence, it seems to me that we as Fellows of this Association should be local in our work, and absolutely accurate in our reports. To be exact is one of the first steps for scientific observation and method. The apparent evidence of one's senses must be confirmed by an instrument of precision. I am careful to say that exactitude is one of the first steps, for probably the very first step is a just recognition of one's own fallibility and a desire to gain information.

Our Fellowship is a very extended one, embracing a territory of many degrees of latitude by many degrees of longitude, with infinite varieties of soil, temperature, environment, etc., yet our TRANSACTIONS do not show those exact local records from which facts may be generalized applicable to the whole

area, or a large part of the area, from which our Fellowship is drawn. It does not seem reasonable to me to suppose that a surgical operation done among the mountains of Western North Carolina is going to behave quite the same way that a similar operation would if done on the Gulf coast of Texas. It does not seem reasonable to me to suppose that similar surgical operations on the banks of the Mississippi and the central plateau of Tennessee will behave the same way. Accurately kept charts with exact and careful notes would unquestionably show differences not yet put on record by anyone, from which much clinical information could be learned. Again, I question whether surgical operations undertaken during the great heat of summer, or after the long continuance of summer heat, will show similar charts or give like results when compared with operations upon patients not subjected to high atmospheric temperature, either temporary or of long continuance.

No association has a membership better situated or more competent than is our own to carry on a series of such investigations.

A high temperature with nearly normal pulse-rate after operation, I have learned to associate with prolonged residence in a malarious locality. Is this a purely local observation, applicable to Baltimore only, or is it true for elsewhere? Microscopical examination of the blood will show malarial plasmodia about the time of a paroxysm, but a cachexia it is possible can exist without the presence of plasmodia, and convalescence from a surgical operation be seriously interfered with, hence it might be proper to withhold surgical intervention until the patient was in a better condition of health; at all events the uncertainty concerning such a state of affairs could largely be cleared up by careful research, and the matter is worthy of study. The United States, receiver of so many immigrants from other lands, offers exceptional facilities for the study of results obtained by what has been designated collective investigation of disease under similar conditions of life and environment; peculiarities of disease, as met with in alien races when assembled together on this continent, are suggestive

in the extreme. In a paper that it was my fortune to hear some years ago, certain phases of surgical disease as met with among negroes were mentioned, the rarity of harelip, cleft-palate, and club-foot, for instance, and the frequency of keloid. The prevalence of sarcoma and carcinoma in the colored race is a subject about which there may be and are legitimate differences of opinion and upon which the opinion of this Association will have an important bearing. Another observation resulting from my local experience is as follows: That the dark male negro not infrequently mates with a mulatto female; after a generation or two of such marriages the children will be very dark, yet I have thought that they, the children, possessed a tendency to tissue-change not exhibited by negroes of the same hue, but without similar admixture of white blood; in other words, the potentiality of degeneration persisted in the skin to a different degree than in deeper structures, and this may be true of other tissues than the skin.

Peculiarities of disease existing in Europeans immigrants to this country have forced themselves upon my notice.

To bring together our isolated observations, to formulate rules of procedure, to tabulate experience, accurately observed experience, and deduce practical results therefrom are indeed a high function; that function this Association is competent to, and in my opinion should, assume.

It would be wise, if the Council does not undertake the duty, that there should be appointed at our annual meeting a business committee, say of two, who with the President, Secretary, and Treasurer, shall suggest two or more subjects for presentation before this body by Fellows whose opportunities for observation and study have been in the line of said subject, after which the subject to be open to general discussion. Such a course would in no wise interfere with our general work as always carried out, yet it would prove suggestive in those directions toward which the experience of our membership tends; by associating isolated observations truth may be discovered. It is scarcely necessary to recall to mind that many an acute and valuable observation lies unrecorded for lack of

company, or fancied worthlessness; to preserve such observations is our duty.

2. This brings me to my second reason for our existence, to aid others—How? First, and most important, by example; then, by precept and suggestion; the highest form of teaching consists in carrying the minds of others to the extent of one's own knowledge, and in such a way that when one's own knowledge fails the seed planted will induce others so that they shall go forward to till new fields, now out of reach.

This is not a teaching body in the ordinary acceptance of the term, yet teaching is done not only by word of mouth, but often, very often, by sympathy and kindly fellowship; hence it might be well for the Council or Business Committee, as the case may be, to invite some earnest worker, not a Fellow, perhaps, to read a paper on the subject dear to him, in which he is a pioneer, and so aid the steps of struggling genius, possibly.

The first paper this afternoon was on the life's work of a mighty intellect, which, commencing in a small town of one of our Southern States, became a household word wherever the healing art is known, and created a new branch of surgery. Perhaps it may be our privilege to assist such an one. Our art has existed long, but never has it advanced with greater strides than in the past decade; exact results now replace rule-of-thumb methods, and already the bacteriologist associates with himself the chemist, who in his turn has become our master therapeutist. Our very success discloses new fields to be conquered such as were never dreamed of.

When we come to consider how such advances are made, how such excellent results are attained, the answer is not difficult, for the method is not new: patient work founded on that which had been done by others. The subject of all others of which we as medical men know the least is that which has been done by others—the history of medicine; yet it is the land which will make, when tilled, the greatest return to the husbandman. How often do we see drugs, instruments, or methods of procedure discovered and loudly praised, when a little

research discloses that they had been tried and found wanting —several times, perhaps—in the past. No other history save that of medicine do we neglect, and yet it is the history of the civilization of the world, as well as of our own art. Tell me a nation's medical history, and I will tell you that nation's grade of civilization. How can we move forward methodically unless we know the results accomplished by laborers in the past? A nation's position in the scale of civilization is gauged fairly well by its medical status. Medicine is the parent trunk from which have branched forth many sciences, for starting hand in hand with theology, having for practitioners theologians or magicians, it has gradually freed itself from many superstitions and undue weight of precedent, not from all, I am sorry to say, but from many, and now stands in close association with philosophy, having inductive reasoning as its chief corner-stone—Bacon and Descartes, its twin apostles.

The well-worn saying that the dwarf on the giant's shoulders sees furthest is true in medicine, and it requires but small originality added to a knowledge of the past to effect an advance. Singularly enough it is usually in our knowledge of the past that we are wanting; as instances of this it is worth recalling to mind that when Dieulafoy first suggested the use of the instrument that bears his name, it became a much-discussed point whether the needle of the aspirator might be with impunity used in the great cavities, while Eastern writers had for centuries told how needles without danger could be thrust into nearly all parts of the body. As germane to the subject these same Asiatic surgeons, when fœtal movements were too violent, are reported to have thrust a needle into the active child to induce quiet by creating surprise, a result quite within the bounds of possibility if the cerebral mass was as active as the muscular system; the surprise created by such needling would not be confined to the fœtus at present.

The very latest of operations have their analogies in the past, thus castration for prostatic hypertrophy is *sub judice*, yet

as late as the twelfth century it was done to prevent leprosy, and in a letter from Innocent III. to the Bishop of Paris, a certain ecclesiastic is allowed to retain his dignities although subjected to the above cure for leprosy. Perhaps as interesting a task as can be found, and certainly as instructive a research as can be made, is that which results from a consideration of medical history by the light of modern work.

Thus Celsus tells us how reptile poison does no harm on an unbroken mucous membrane, while Mitchell and Reichert and others have given good reasons therefor.

Galen told us that human saliva was destructive to life, but it was reserved to Sternberg to recognize the pneumococcus in his own saliva which was the lethal element. Indeed, recorded medical experience is a foreign language which it is your privilege and mine, as well as our pleasure, to translate by the lamp of modern learning. This same modern learning occasionally entirely fails to offer adequate explanation; for instance, dancing babies up and down in the arms of their nurses was considered very excellent for the children and a great aid to the milk-producing qualities of the nurse. In the year of grace, 1895, we have evolved a springed baby carriage and a bottle of diluted cow's milk by way of scientific explanation. Let us hope the new twentieth century woman will do better. The history of our art should be our ever-present study, a judicious union of science and traditional authority; by it the student becomes tolerant and does not consider his horizon as the limit of human knowledge, for whether we consult the Chaldee, the Egyptian, the Hebrew, or the last journal article, we can learn charity to others, if nothing else. The physician who confines himself to his own work confines himself to mediocrity.

> Mark what another says; for many are
> Full of themselves, and answer their own notion.
> Take all into thee, then with equal care
> Balance each drachm of reason like a potion.
> If truth be with thy friend, be with them both.
> Share in the conquest.

DR. J. MARION SIMS AND HIS WORK.

By John A. Wyeth, M.D.,
New York.

At the close of the memorial address upon one of the most distinguished members of the medical profession, in the city of New York, in 1861, Dr. J. Marion Sims was called upon to make some remarks. He said:

"Mr. President: It seems hardly right that I should be the first to break the solemn silence that hangs like a pall over this mournful assembly, for I see here those who have known our beloved Dr. John W. Francis for half a century, while my acquaintance with him was confined to the last seven years of his life. But, sir, in those seven years I knew him as well and loved him as dearly as did any of you. When I first came among you, friendless, as it were, completely wrecked in health, and almost without a hope in life before me, I received many acts of kindness from your hands, which have sunk deep into my heart, and none of which, I trust to God, will ever be effaced; but while I make this acknowledgment of indebtedness to you, I must candidly confess that I owe more to Francis than to all others."

My acquaintance with the distinguished subject of this address was confined to the last seven years of his life, and I can truly say in those seven years I knew him as well and loved him as dearly as did any man; and with like candor, I confess that I owe more to Sims than to all others.

From the day I began the study of medicine, Marion Sims was a familiar name, and when, in 1872, I came to New York City to live, his star was in the zenith. Fresh from his Euro-

pean triumphs, where such men as Keith, Simpson, Spencer-Wells, Velpeau, Nélaton, Civiale, Ricord, Chassaignac, Baron Larrey, Martin, Simon, Bohm, and other great masters in surgery had acknowledged his genius and applauded to the echo the grand achievements of the brilliant American, it is no wonder his name was on every tongue. That marvellous career, beginning as it did from his birthplace, in the humble log-cabin upon his father's modest farm, in Lancaster district in South Carolina, to his position then as the father of gynecology and the most widely known surgeon of the world, was certainly enough to attract the attention of the student who might, however feebly, strive to follow in his footsteps.

Though living in sight of his hospitable home, it never occurred to me that I would ever become personally acquainted with so illustrious a man. At the time of the unhappy controversy over the Woman's Hospital, I read carefully the pamphlets issued by all of the parties, and, although I knew none of them personally, my sympathies were immediately and entirely on the side of Dr. Sims. So strong were my feelings in the matter, I ventured to write him a letter in which I stated that, in common with the vast majority of the profession, I sympathized with him and indorsed his position, adding that, although unknown to him, I was from Alabama, and stood ready at any time he might call upon me for any service I could render him. The next morning at an early hour he walked into my office in Twenty-seventh Street, holding the letter I had written in his hand, and looking me full in the eye with his gentle yet manly expression, asked, "Did you write this letter?" I told him I did, and he grasped me by the hand and said, "From this time on you and I are friends." His assurance was prophetic, for from that moment to the time of his death my attachment for him grew stronger and stronger, and I had many evidences of his friendship.

When in the following year I called upon him in Paris, where he was residing, he was as earnest and cordial in his attentions as heart could wish. Recognized there as at home a benefactor of his kind and a surgeon of world-wide renown,

his professional advice and his operative skill were sought by people of all classes in all parts of the continent. Success never lessened his attentions or the evidences of kindly feeling to the less successful and less fortunate, nor did the flattery or patronage of the rulers of Europe or its titled aristocracy dull for a moment his appreciation of his native country, nor chill the fervor of his republicanism. He was an American to the core, and although loyal to the cause of the South in her terrible struggle for a separate existence, he was always an American.

I recall an incident which left this impression strong in my mind. Dining with his family in Paris one evening, there was present Colonel Blank, a member of the personal staff of the Prince of Wales. In common with many Englishmen, who will not see any possible good outside the Queen's domains, he seemed never to grow weary of expatiating upon the greatness of England, her victories, conquests, and the broad humanity of her policy, domestic and foreign. Having been schooled in early life in the grievances which the cruel policy of Great Britain had inflicted upon my own country and people in its early history, I waited with patience, hoping some one older than myself would resent the assertions of the bragging Englishman; but evidently Dr. Sims as the host was too polite, and the others were too modest. Unable longer to hold my tongue I retorted with a narration of as much of the cruel foreign policy of England as I could conjure up, from the instigation of the Indian massacres among the frontier settlements in the United States, the brutal conduct of Tarleton and his troops in the Revolutionary War, the horrible prison war-ships in New York harbor, the blowing of the Sepoys from the cannon-mouths, the opium traffic, and everything mean and bitter against England I could remember. It is enough to say that the topic of conversation was immediately changed, and everybody at the table took a great interest in everything but the discussion of American and English politics. The next day when I made my dinner call, feeling that I owed some apology to my host, I told Dr. Sims I

hoped he would pardon my rudeness, giving as an excuse the great irritation to which I felt we were all subjected by his remarks. He slapped me on the shoulder and said: "Apologize! why, I never was more gratified in my life than to hear the scathing you gave that arrogant, self-conceited Englishman, and it was all I could do to keep from joining in with you." From that time on I saw him frequently whenever he was in this country, and when, in 1880, he passed through the terrible ordeal of a double pleuro-pneumonia, he sent for me to come and stay with him during his severe illness, and for fifteen nights I stayed by his bedside or lay upon a sofa in easy call of the suffering patient. As is common with all doctors, he was a very bad patient. He had his own ideas of things, and, although he had the fullest confidence in his attending and consulting physicians, he would at times decline to take the remedies that had been prescribed. In the course of this illness, when the second pleura and lung began to be involved before the first had cleared up sufficiently to furnish respiratory surface, it seemed that he could not live from hour to hour, and it became necessary to administer oxygen, to which he had a great aversion. He positively declined to inhale the gas, and I was compelled to resort to dissimulation, and to place the end of the tube beneath his pillow in such a way that the gas escaping from the cylinder would mingle with the atmosphere close to his mouth. I had been directed by Dr. Loomis that no morphine should be administered at this particular crisis. On one or two occasions, when he was suffering intensely, a small quantity had been given with gratifying effect to the patient. He insisted at this time that I should give him a hypodermic. I remonstrated mildly, telling him his condition was such that it was very dangerous to take it, and that Dr. Loomis had left positive instructions not to give him any that night. He raised such a clamor that at last I said, "Well, if you must have it, you must, but you must relieve me of all responsibility." He answered, "All right, I'll do it." Having anticipated such a demand, I had already loaded my syringe with pure water, and took the

bottle of Magendie's solution and went through all the form of filling the syringe with the proper quantity. It may be possible that I affected just a little too much nicety in the performance. I stuck the needle in the patient's arm, injected the contents of the syringe, put everything away, and went back to my sofa, lay down, and pretended to be asleep. The patient was quiet for five or ten minutes, then became somewhat restless, and soon after I heard him call. I got up and walked around to the side of his bed. "How much Magendie did you give me?" he asked. "Six minims," I replied. Without taking his eyes from mine he pointed his finger at me and said quickly, "Wyeth, that's a lie, and you know it!" I am sure it was one of those white lies which will never be recorded against me, and I have every reason to know, after his convalescence and recovery, he had entirely forgiven me. I did not, however, allow him to forget it, for I never missed an opportunity to tell it on him when we were together in company.

Marion Sims died on November 13, 1883. Early in 1882 he had returned to Paris and revisited New York in August, 1883. In the interval between August and the day of his death in November I saw him frequently. A day or two before he died, I remember he was coming into the parlor of his residence, complaining that his heart beat very fast whenever he went upstairs. I remarked that he was unnecessarily apprehensive, since Loomis and all the diagnosticians had excluded any organic heart-lesion. He said, "It doesn't matter what they say, this heart-trouble will kill me yet." He had intended to return to Europe on November 8th, and had purchased tickets for himself and family on a steamer sailing on that day. He was, however, prevailed on to remain over to do an important operation on the wife of a prominent citizen of New York City, which he did on November 12th. He returned home about eleven on that night and went to his bed. It was his custom to keep pieces of white cardboard by his bedside and a lead pencil convenient, so that at any time in the night when a thought occurred to him that he wished to

record, he could do so without making a light. He was thus engaged when, in an instant, without an expression of pain, his heart ceased to beat. Truly, Nature crowned his splendid career with the greatest of all possible blessings, a painless death. He died as he had always wished to die, in the fullest possession of his wonderful faculties. He so often said that he hoped it would not be his lot to live to be a worn-out old man, one laid upon the shelf.

In that most fascinating book, *The Story of My Life*, Dr. Sims says that thirteen was always a lucky number with him. He was born in 1813; on the 13th of the month he graduated from college; he left his South Carolina home to practise in Alabama on the 13th; arrived in New York City on the 13th, and it was on November 13, 1883, at fifteen minutes past three o'clock, that he died. It might be remarked that this 13th of November, 1895, is the anniversary of his death.

It is safe to say that Marion Sims attained the highest position ever achieved in the history of our profession. He stands alone in this; his reputation as a surgeon was so world-wide that in any capital, in any country within the domain of civilization, he could command at any time a lucrative practice. Assuredly, there does not exist in the history of surgery another such distinction. In New York, London, Paris, Brussels, Berlin, Vienna, Rome, Madrid, Lisbon, and St. Petersburg he found himself everywhere sought after, not only by the patients he could benefit, but by the leading members of his own profession, who were anxious to pay tribute to his wonderful genius. The study of his life should instil hope into the heart of every student. Born amid the most humble conditions in a backwoods county of South Carolina, he died the foremost surgeon of his country and the world. What a transition from the log-cabin of the poor farmer in Lancaster district to the palace at Saint Cloud, where he was a guest of Napoleon III., the trusted physician to the Empress, as he was to the highest and lowest of those who sought relief at his hands in any part of Europe!

John Sims, his father, never had a day's schooling in his life until after he was married and this, his oldest boy, was six months old. He then went to school less than a year in all, but, under the direction and encouragement of Mahala Mackey, his wife, he became even at this late date an accomplished accountant and bookkeeper, and wrote, as his son attests, a beautiful hand. He became a leader among the people, a surveyor of repute in the settlement of disputed land boundaries, colonel of a regiment of militia, and rendered efficient service in the war of 1812 with Great Britain, as he also served in the army of the Confederacy. It is evident that at an early day he recognized the genius that was then in embryo in his eldest son, for, being able to give only one of his boys a thorough college education, he selected Marion as the scholar of the family, sent him to the best schools in the neighborhood, afterward to the University of South Carolina at Columbia, where he graduated in 1832, and later to a medical school at Charleston, and then to Jefferson Medical College at Philadelphia, where he took his degree in medicine in 1835.

The young graduate of Columbia seemed to be entirely unconscious of the possession of any extraordinary faculties. He says of his class, "It was conspicuous for its want of talent, with possibly two exceptions, Lessesne and Mitchell, for I was never remarkable for anything in college except good behavior. Nobody expected anything of me, and I never expected anything of myself."

There were, at that time, but three avenues open to a young man with a university education—the law, the church, and medicine. Marion Sims did not have a great respect for the law; he did not feel that he was good enough to be a preacher, and so he said there was nothing for him to do but to be a doctor. When he told his father that he had determined to study for this profession, that old gentleman could not conceal his unbounded contempt, and said, "To think that my son should be going around from house to house in this county, with a box of pills in one hand and a squirt in the other, is a thing I thought I would never have to contemplate."

I have often been asked if I did not consider it a fortunate thing for the reputation of Dr. Sims that he happened to live in a time when the science of obstetrics was so little understood that vesico-vaginal fistula was of common occurrence, since it is well known that this accident rarely occurs in modern practice. In my opinion, he was a man of such extraordinary mental endowment, he would not only have made a world-wide reputation as a discoverer in any surgical epoch, but he would have made a like reputation in any avocation to which he might have given his energy and ability. Circumstances do not make men. It is the genius of the individual that takes advantage of circumstance, quickly recognizing the opportunities which it presents. Dr. Sims was a practitioner of recognized ability, a surgeon in a large way and very successful for several years before the accident occurred which opened up to him the line of work upon which he made his greatest reputation.

The early professional career of Dr. Marion Sims was not unlike that of the majority of young physicians. He returned to his home in Lancaster in the early part of 1835 to begin the practice of medicine, with no clinical advantages, no hospital experience, and, as he states, "having seen nothing at all of sickness." He had a full set of instruments for the performance of operations, and a full stock of medicines, but a very small stock of what he needed most—practical acquaintance with injuries and disease. He had a tin sign which was fully two feet long, because like all young doctors just starting, he "wanted to let everbody know where he could be found." They were not long in finding him out, for he was soon called to treat a child with cholera infantum. He knew nothing of the cause of this disease, and could know nothing of its therapy; he prescribed for the baby and it died. A second case had a similar fate, and the young doctor took his sign down, threw it into an old well that was in the yard behind his office, and determined to leave his country for his country's good.

In the fall of 1835 he went to Alabama and located at a country cross-road. It was here that he first gave evidence

of that moral and professional courage which was a distinct trait in his character, as well as of the clearness of insight which made him prominent as a diagnostician. He was called to see a man who had been complaining for several weeks, and recognized at once that it was an abscess of the liver. None of the consultants agreed with him, but he insisted that it was an abscess, and if it was not opened the patient would die. When they argued with him that the operation itself was very dangerous, he used in reply the great surgical axiom that it could do no more than kill the patient, and that it was better to die in the effort to be relieved than to remain as he was and suffer so much and then die after all. The patient, himself a sensible man, recognized the soundness of this position and submitted to the operation, which was done without an anæsthetic, as chloroform and ether were then unknown. The man recovered, and the reputation of the young surgeon travelled for the usual "forty miles around." His practice improved to such an extent that he was able to go back and claim his sweetheart for his wife, and he seems then to have reached the summit of his ambition. He says of this period, in 1837: "I had as much as I could possibly do, and was exceedingly happy in my new position. I had a little piece of ground on which there was a small cabin, containing one room, and I had a small addition built to it, making two rooms in all, and there our first two children were born."

It was about this time that the human family came very near to suffering a great disaster, for the young surgeon who was soon to startle the world with his discoveries was about to abandon the profession. He said of himself: "I am an example of a man who never achieved the object of his early ambition. My successes have been in a direction that I never dreamed of at the start. I had no particular interest in my profession at the beginning, but I studied away at it and at the end of five years had become quite a respectable physician and a tolerably successful one. I never dreamed of making other than a local reputation, and was ready to take up anything that offered to hold out an inducement of fortune, because

I knew I could never make a fortune out of the practice of medicine." Dr. Sims received a letter from a gentleman in Philadelphia, who wrote that some capitalists had offered him the credit of $100,000 in Philadelphia, if he would take a stock of clothing, move to Vicksburg, and set up a large clothing-house. He offered him a half-partnership if he would quit the practice of medicine and join in this enterprise. The offer was accepted quickly. The little log-cabin with two rooms and the piece of ground was sold for $400, but just as he was about to leave for Vicksburg, a second letter came stating that the capitalists had backed out at the last moment, and the Vicksburg enterprise was ended. The routine life of the country practitioner was resumed. He made his visits through his own and the adjoining counties with his medical saddle-bags, his dog and gun, and said he "never made a visit in the daytime that he did not succeed in bagging some game."

He continued in this easy country life until 1840, when he was stricken down with malarial fever, which continued so persistently that out of sheer desperation he gave up his country home and practice and moved to Montgomery, where he thought it would be more healthy. It seems that about this time he concluded that there was more in medicine than the saddle-bags and dog and gun, for he said, "When I went to Montgomery, I gave my dog away and sold my gun. I determined to devote myself henceforth entirely to my profession."

While in Montgomery, between the years 1840–45, he built up an extensive practice, did all kinds of general surgery, successfully operated on club-foot, strabismus, harelip, cleft-palate, and practically all the major amputations. I have taken pains to look over the current medical periodicals of that day and time, and have been surprised at the magnitude of some of the work he did. In the *American Journal of the Medical Sciences* for April, 1847, I find a detailed account of the "Removal of the Superior Maxilla for Tumor of the Antrum; Apparent Cure; Return of the Disease; Second

Operation; Sequel," by J. Marion Sims, M.D., of Montgomery, Ala. Every surgeon knows that this is one of the most formidable operations, even with all the accessories of modern surgery, and, remember, this was done in times when there were no anæsthetics, which makes it all the more wonderful. It is described as the process of Warren and Velpeau. The operation was so extensive that the origin of the inferior oblique was divided, and the contents of the socket (orbital cavity) separated from the orbital plates of the maxillar and malar bones. Further on, the only remaining bony attachment was the pterygoid process of the sphenoid bone, which was separated. The diseased mass being then movable started slightly downward, exposing to view the second branch of the fifth pair of nerves, just as it entered the infra-orbital canal, when it was easily divided, producing excessive but momentary pain. The disease returned on May 24th, four months later, and the operation was repeated. He says: "The patient bore the operation for the greater part of the time with wonderful fortitude, but at the close his strength was almost exhausted, and he would cry out in the bitterest agony, 'Oh, how long, how long will it last!' And it lasted, I am sorry to say, one hour and twenty-nine minutes."

In the same journal for the month of October, 1847, I also find the report of a case of "Osteo-sarcoma of the Lower Jaw; Removal of the Body of the Bone without External Mutilation," by J. Marion Sims, M.D., of Montgomery, Ala. In this case the operation was done from within the mouth. The soft parts were divided with the scalpel and the bone sawed in two with the chain-saw above the angle and at the symphysis in front. This patient recovered. In conclusion the operator says:

"There are several considerations to recommend this operation in preference to the usual one with its extensive incisions: 1. There is no extensive mutilation. 2. As the third branch of the fifth pair of nerves was divided at the outset of the operation, its subsequent stages were comparatively free from pain. 3. As no important bloodvessels are cut,

no ligatures are required. (In this case it was my fault that the left facial artery was wounded.) 4. There is no trouble with the after-treatment. 5. It is just as easy of performance as the old operation."

This was certainly heroic surgery. I have myself, on one occasion, removed the entire half of the lower jaw from within the mouth without an external incision, disarticulating the temporo-maxillary joint, but I am sure that the difficulties without an anæsthetic must have been much greater than with it.

It was also about this time that he wrote his first observations upon "trismus nascentium" and the compression of the brain due to overlapping of the cranial bones. The first child with this trouble, to which he was called, died and, with true scientific instinct, he insisted upon and held a post-mortem examination. He found the cranial bones overlapping and making mechanical pressure on the brain, and a clot of blood due to extravasation between the spinal cord and its membranes. The profession is entirely familiar with his contributions on this important subject. He considered it his first great discovery in medicine. Others were soon to follow. His reputation had so extended that difficult and chronic cases began to be brought to his notice, and among these were a number of vesico-vaginal fistulæ; but, after a careful study of these cases, he despaired of ever being able to cure them; and the last three or four who had been brought to him he had directed to their homes, as he could do nothing for them. But they were not to go. An incident, trivial in itself, occurred that day that determined his career and laid the corner-stone of that great temple of gynecology of which Marion Sims was architect and builder.

Victor Hugo, in his wonderful description of the battle of Waterloo, says that the fate of that battle, and, probably of the world, turned on the accidental meeting with a peasant lad, who was minding some cattle and who, seeing the head of the allied army moving in the wrong direction, said to the leader, "Don't go that way, go this!" I have often wondered

over what womankind would have suffered through all these years, had not that immortal Alabama hog laid itself down to sleep in that particular fence corner by the roadside, on that eventful day in June, 1845. The animal, awakened and frightened by the nearness of a lady on horseback, started up with considerable noise, the horse sprang from under its rider, who struck heavily upon her pelvis. She was carried to her home, and when Dr. Sims reached her, she complained of great pain in her back and pelvic organs. A careful examination revealed a backward displacement of the uterus. Placing her in the genu-pectoral position and in the further manipulation to replace the uterus, the accidental advent of atmospheric air dilated the cavity, and at the same time suddenly restored the uterus to its normal position. The quick eye of the genius at once took in the entire significance of this accident. Almost overcome with the discovery, he said to himself, "If I can accomplish this by the use of atmospheric pressure, why can I not employ the same agency in attempting to relieve these incurable cases of vesico-vaginal fistula?" Enthused with this idea, he hurried back to his office, only stopping at a hardware store on the way to buy a large pewter spoon, and from this was evolved at once the speculum which bears the name of its inventor, and of which the illustrious Emmet says, "From the beginning of time to the present, I believe that the human race has not been benefited to the same extent and in a like period by the introduction of any other surgical instrument. Those who did not fully appreciate the value of the speculum itself, have been benefited indirectly to an extent they little realize, for the instrument in the hands of others has probably advanced the knowledge of the diseases of women to an extent which could not have been done for a hundred years or more without it."

It is unnecessary to say that the patients with vesico-vaginal fistulæ were not sent away. Poor in pocket as in health, Dr. Sims had erected in one corner of his premises in Montgomery a hospital which contained sixteen beds, and

these he filled with patients suffering from this most loathsome of all human maladies. He even boarded them without charge, and scoured the country for others and brought them to his hospital at his own expense. It took him three months to have the necessary instruments made and to have everything ready for the operations. But, alas, the speculum was not all that was necessary to success. Operation after operation was done with the ordinary silk sutures, but no complete cure was effected. He says, "My operations all failed so far as positive cure was concerned." This went on not for one year, but for four years. As a matter of course, it was an enormous tax for a young doctor to carry. At first he had the help of others, but after two or three years of constant failure and fruitless effort, his friends lost confidence in the success of his efforts, and it was with difficulty that he could get any physician to help him with his operations. His patients, however, believed in him and stayed with him. He had concluded that the suture-material was the cause of disaster. He thought if he could use a metal suture he might succeed. He tried the lead suture introduced by Mettauer, of Virginia, but that failed. In the midst of his great perplexity, one day, in walking from his residence to his office, he noticed on the sidewalk a little bit of brass wire which had been attached to a pair of suspenders to act as a spring or elastic; it was very fine and seemed to be just what he needed. Taking this to a silversmith in the city, he asked him if he could not make him some silver wire of the same size. When this was received from the jeweller, he went to work at the operation again. The famous Anarcha was chosen, and this was the thirteenth operation he had performed upon her. He says that "with palpitating heart and anxious mind, at the end of the week I looked at the wound for the first time, and it had entirely healed without redness or inflammation, and Anarcha was cured!" In two weeks more Lucy and Betsy, two other patients upon whom he had operated several times, were also cured. He said, "I realized then, at last, that my efforts had been blessed with success, and that I had, perhaps, made one

of the most important discoveries of the age for the relief of suffering humanity."

If this is not a picture which attracts the sympathy and interest of the civilized world, I cannot imagine one.

But this was not all. His first cases were cured in 1849. Under the excitement and tension which he had suffered during these long, anxious, weary years, no sooner was his success achieved than his constitution gave way and his health failed him entirely. He was taken with a severe, painful ailment, from which he suffered for many years, and which rendered him unfit for professional work. Conscious of the value of the discoveries he had made to the profession and to mankind at large, it is not surprising that he was no longer content, although an invalid, to remain quietly in a small town in Alabama, so he concluded to remove to New York City, in the hope of calling the attention of the profession to his work. He reached New York in 1853, where, after many vicissitudes of fortune, he triumphed at last in founding the Woman's Hospital of the State of New York, an institution which was the centre for the dissemination of all that was new and best in gynecology, and which to-day stands as one of the monuments to the memory of its immortal founder.

It would be painful, and it is unnecessary, to refer to the opposition with which he met from the leaders of the profession. It is comforting to know that the rank and file were with him heart and hand. It is more comforting to remember that so complete was his recognition and triumph, that those who most opposed him at first were compelled to acknowledge his superior ability and to recognize the high position he attained. By 1861 his methods were fully established in his own country, and were not unknown in Europe; but Marion Sims was not a man to sit quietly in his own land and allow the work that he had done to disseminate itself through civilized lands by the slow process of medical periodicals. He went abroad and arrived in Paris, then the centre of surgical science in Europe. There he went to the leading hospital surgeons, told them what he had done, what he could do, and

asked them to furnish him with the patients, and he would show them how to cure a disease up to that time incurable. Case after case was operated upon by him and each was cured, until his presence in Paris created a *furor* in hospital circles. So great was the reputation he had achieved that he was called to all parts of Europe, not only to perform this special operation, but in consultation and to treat various maladies in the department of gynecology. In fact, it was but a short while until he had a most lucrative practice among the best people of the European capital.

It is known to you that Dr. Sims performed the operation of cholecystotomy without knowing it had ever been done, and, in fact, he was only preceded by another American, Dr. Bobbs, of Indiana, a few months. There can be no doubt that the establishment of this great operation was due to its advocacy by so distinguished a surgeon, with whom it was original.

Outside of his contribution to the subject of gynecology, probably the most important forecast of the surgery of the future, and one designed to rank higher in professional literature, are his remarks on the treatment of gunshot-wounds of the abdomen in relation to modern peritoneal surgery, which were published, only a little while before his death, in the *British Medical Journal*, a synopsis of which was read before the New York Academy of Medicine, on October 6, 1881.

After quoting the fatal statistics of Otis, recorded so faithfully in the *Medical and Surgical History of the War of the Rebellion*, quoting also the experience of some of the great surgeons of our day, men of large experience in the treatment of peritoneal wounds—the grand old teacher in surgery, Samuel D. Gross, and his scarcely less distinguished son; Pirogoff, in the campaign in the Caucasus; Lohmeyer, in the Danish War; Legouest, in the Crimea; Surgeon-General Longmore, of the British Army; Dr. J. S. Billings; Dr. H. S. Hewitt; Dr. N. S. Lincoln; Professor Hunter McGuire, who wrote, "Penetrating wounds of the belly are nearly all fatal, and we must look for some other means of saving life than we know

of at present. If the shock, thermometer, etc., indicate wound of the bowel, cut down and sew it up. You say it is desperate. I answer that the condition justifies it. We must do something more than give opium and use poultices."

After quoting all these eminent authorities, and from his own experience as surgeon-in-chief of the Anglo-American Ambulance Corps in the Franco-Prussian War, Dr. Sims concludes :

"1. The external wound or wounds should be enlarged, as soon as possible, sufficiently to ascertain the whole extent of the injuries inflicted. 2. These should be remedied by suturing the wounded intestine and ligating bleeding vessels. 3. Diligent search should be made for extravasated matter, and the peritoneal cavity should be thoroughly cleansed of all foreign matter, either fecal or bloody, before closing the external wound. 4. The surgeon must judge whether the case requires drainage or not. Generally it will not if these rules be strictly carried out. We must not forget that fecal effusion had taken place after the abdomen has been sutured, simply because the surgeon failed to find and suture all the lesions. We must not forget that fatal results have followed enterorrhaphy when thoroughly done, simply because fecal effusion had taken place before the intestine was sutured, and had been left in the peritoneal cavity, producing death as speedily and certainly as if the lesion had not been found and closed. Therefore, it is essential not only to find all lesions and remedy them, but to be sure that we leave the whole cavity of the peritoneum perfectly clean."

It may safely be said that this paper by Marion Sims ("The Careful Aseptic Invasion of the Peritoneal Cavity Not Only for the Arrest of Hemorrhage, the Suture of Intestinal Wound, and the Cleansing of Peritoneal Cavity, but for all Intra-peritoneal Conditions") was the starting-point in this new field of surgery. It is true that other surgeons, many years before this date, had opened the peritoneal cavity and sutured intestinal wounds. Dr. Newell, of New Brunswick, N. J., as early as 1847, had made "an abdominal incision,

and sutured the intestines in a case of gunshot-wound of the intestine, cleansed the cavity, closed the wound, and the patient recovered." Our own Southern surgeon, Kinloch, opened the abdomen in June, 1863, excised an inch of the upper portion of the ileum and two inches of the lower portion, near a fistulous opening caused by a gunshot-wound received in October, 1862. In 1882 he performed laparotomy, and sutured five pistolshot-wounds in the mesentery and intestine; but two other wounds escaped observation, and the patient died in thirty-two hours. Dr. Kollock, of Cheraw, S. C., in 1884, opened the abdomen of a lad aged fifteen years, and sutured two pistolshot-wounds of the colon and one of the small intestine. The boy recovered.

But the operation was not accepted until, following the conclusions of Dr. Sims, our distinguished surgeon, Dr. W. T. Bull, of New York, in a successful case of intestinal suture for gunshot-wound, presented before the New York Surgical Society on January 27, 1885, demonstrated beyond all controversy the value of exploration of the abdominal cavity under such circumstances, and from that date the operation has been frequently and successfully performed.

It is interesting, in this address, to consider for a few moments how the advanced position assumed by Dr. Sims was looked upon at that time. Dr. James R. Wood, who was then without doubt the most prominent general surgeon in New York City, and one of the most prominent in the United States, in the discussion which followed the reading of the paper, said:

"I dislike to speak after the king. I do not like to take issue with him. He has spoken as a surgeon who has had to do with the female organs of generation and others in that region of the body, and which he has treated so wonderfully well, but I am loath to indorse all my dear friend, Dr. Sims, has said. I think that a surgeon should be careful how he invades the peritoneal cavity, unless, as my friend, Dr. Sayre, has said, he has made out an accurate diagnosis, and to do this, especially in gunshot-wounds of this cavity, is almost

impossible. I have during my professional life seen a great many gunshot-wounds of the abdomen, of the pelvis, of the thorax, of all the great cavities of the body, and early in my professional days I searched for bullets as I should not have done. . . . But suppose we cut into the cavity of the peritoneum, and we find blood in large quantity ; the patient is still laboring under the shock, for in penetrating wounds of all serious character, especially gunshot-wounds, the shock which follows lasts for a long time. In the celebrated case of Fisk the patient never came out of the shock. Suppose we cut into the cavity of the peritoneum while the man is suffering from shock, what becomes of him ? He dies, and probably will do so while we are cleansing the cavity. I am simply setting forth surgical facts, and we must look them squarely in the face. We have, besides, to look to the reputation of the profession of which we are members. If the patient dies while the surgeon is operating and the blood is flowing freely, what will be the effect produced upon the community ? Again, suppose we proceed to cut out the lacerated portion, as Billroth did the diseased portion in cancer of the pylorus, which in my opinion is a dreadful operation to perform. We will sew up the opening, but the contents will escape into the peritoneal cavity and also down into the pelvis, and if we now make a free incision in the abdominal walls for the purpose of cleansing this cavity, I believe we should get ourselves in trouble. Most of these patients die in shock. They do not live long enough to get blood-poisoning. But we are told that we must not wait lest this bloody serum reaches the peritoneal cavity and gives rise to blood-poisoning. Yet if we sew up the opening in the stomach, cleanse the cavity of the peritoneum, the patient does not come out of shock and dies. . . .

" While I should be cautious about opening the peritoneal cavity, if I found that this cavity had been penetrated, I should keep the opening patent. So you see that it is my belief that some of the surgeons here are not altogether behind the times, although the gynecologists are getting all the glory. I

do not believe, however, that you, sir (Dr. Sims), get half as much as you deserve. This is a great subject, too great to be exhausted in one evening's discussion. I thank you, sir, for opening our eyes. You have said what I never before heard, and I thank you and those whom you represent for your able paper, for what you have said and so well said; but to the gynecologists does not belong all the glory."

The distinguished editor of the *Medical Record*, Dr. George F. Shrady, himself an authority in surgery, says: "Rarely, even before the New York Academy of Medicine, is a subject brought up for discussion which commands so much interest and affords so much practical instruction as that treated of in the paper of Dr. Sims. The subject is one which of late has claimed the attention of the leading surgeons throughout the world, and its careful study has invited the performance of operations in abdominal surgery which have been daring, brilliant, and, in a goodly number of cases, successful. While, however, there is danger that this craze for bold and startling operations upon the peritoneal cavity may be carried to the extreme, it is safe to say that by a more thorough mastery of the principles that underlie success, even in the most daring surgical procedures on the abdomen, much substantial progress is to be made. . . . The author of the paper, with the foresight and prerogative of an acknowledged leader in his specialty, prospects possibilities and anticipates results which are salient points for profitable discussion. At the same time they challenge in a direct and practical manner the calm and stern judgment of the clinical experience of surgeons in general. From his standpoint, it is safe to assert that Dr. Sims cannot go too far in his advocacy of abdominal section for all injuries connected with the peritoneal cavity. But it is fortunate, however, that the profession at large is not yet prepared to accept his views *in toto*."

When President Garfield was shot, and he was consulted, in Paris, as to his opinion in regard to the proper treatment, he telegraphed: "If the President has recovered from the shock, and if there is undoubted evidence that the ball has traversed

the peritoneal cavity, his only safety is in opening the abdomen, clearing out the peritoneal cavity, tying bleeding vessels, suturing wounded intestine, and treating the case as we would after ovariotomy, using drainage or not as circumstances require."

And in his eloquent and at times aggressive way, he reiterated, "This is what I said then; this is what I say now, and what I am able to defend on the broad principles so well proved in peritoneal surgery. Shall we sit idly by and see any man, whether he be president or peasant, certainly die with a gunshot through his intestines without an effort to save his life?

"If the facts now presented to you on this subject be accepted, I think we can logically draw the following conclusions: 1. Death from septicæmia is the general result of gunshot and other wounds of the peritoneal cavity. 2. Gunshot-wounds of the pelvic cavity recover because of natural drainage by the track of the ball carrying off poisonous effusions. 3. Gunshot-wounds of the peritoneal cavity die because there is no natural drainage, and the poisonous effusions and bloody fluid flow into the pelvic cavity and are there absorbed, producing septicæmia and death. To evacuate this bloody fluid and other effusions, it is necessary to enlarge the peritoneal wound, clear out the peritoneal cavity, suture wounded intestine, tie bleeding vessels, using drainage or not according to circumstances."

After this memorable meeting adjourned Dr. Sims and Dr. James R. Wood were walking arm in arm, on their way home, when Dr. Wood remarked to Dr. Sims: "Sims, that was a great paper you read to-night. You gynecologists deserve a great deal of credit for the work you are doing, but you are going too far." Dr. Sims replied, "Well, Jimmy" (that was his pet name for Dr. Wood), "you and I are getting old, and we may not live to see it; but what I have said to-night will be accepted and it will be the practice in time."

In literature, law, or politics, he would have vaulted into prominence by reason of his ability. Dr. Wesley Carpenter wrote of him:

"The ease with which he described the details of a protracted and delicate operation, and the comprehensiveness of the description, is one of the most, if not the most, complete contribution which has ever graced the transactions of this Society, and may be followed as a most complete pattern by all medical writers. Warming with his subject, he closed his article with a pen picture of Mr. Keith, which, for simplicity, faithfulness of description, and elegance of diction, has not been surpassed. So mavellously complete was it that when the writer of this sketch visited Edinburgh, in the following summer, he said to himself, 'There is Thomas Keith,' as a carriage passed him and stopped on the opposite side of St. George's Square." It was Thomas Keith.

As to his eloquence, no better test could have been made than in the impromptu speech on board the steamer Atlantic, July 4, 1871, to the toast, "The Fourth of July." It is too long to reproduce here, but it was such an eloquent and earnest defence of the South, such a clear presentation of the principles which had actuated Southern statesmen in exercising the right of secession, such a dignified and powerful resentment of the humiliating conditions which had been forced upon the South in the period of reconstruction, and, with all, such a truthful criticism on some of the weaknesses of his own people, that it is well worth preservation.

He went on to say, "It was said this morning by my friend, Mr. George Francis Train, the eloquent orator, that the Fourth of July was annulled by the bombardment of Fort Sumpter. Sir, the thunders of Fort Sumpter were but the premonitory throes of a labor that ended in the new birth of one of the mightiest nations of the earth, for we can now truly say that we have been born again. If you applaud so vociferously that sentiment from a citizen of New York, let me tell you that this is from the heart of a red Southerner, for I was born in South Carolina, was wholly educated there, and lived there till I was a full-grown man; that I was contemporary with Davis, and Stephens, and Toombs; that my political teachers were Thomas Cooper and Turnbull, McDuffie, and

the immortal Calhoun; that I was for years an intimate personal as well as political friend of Yancey; and in later years I was in the kindest and most sympathetic relations with Mason and Slidell; and that I sympathized heart and soul with the South in what you call a rebellion.

"Sir, we of the South are a congenial people. Have you of the North been magnanimous or generous to a fallen foe? to a prostrate brother? No, sir, you have ruled us with a tyrant power. You have been merciless and vindictive. You have forced upon us conditions humiliating to our pride and subversive of our rights. You have confiscated our property and disfranchised our best citizens. You have robbed us of civil liberty, and degraded us politically below the level of the meanest slave that ever wore a shackle. But, if I reproach you with injustice, and injury, and wrongdoing, don't for a moment suppose that I justify the South in the course she has pursued since the War. In her it is folly to talk of the lost cause. It is puerile to sulk and to play the part of abstention. Let her citizens now show to the world that they are men, that they can understand the great problems now before them, that they can rise and prove themselves equal to the emergencies of the time. Let them, like sensible, practical, honest men, accept the issues of the war, the fifteenth amendment and all. Then shall we have universal amnesty, and equal rights under the Constitution, not as it was, but as it is."

The people of the South later learned the value of this counsel, and, resolute in peace as in war, within two decades were in control of the government by which they had been crushed. In politics as in surgery, he was ever in advance of his age.

In 1894, a year ago, there was unveiled in Bryant Park, New York City, a statue in bronze of this immortal man. It stands erect and proud, a life-like image of the great teacher, the spontaneous gift from his brothers in the profession throughout the civilized world, and from many of the unfortunate beings his genius and skill had benefited. In brief yet comprehensive phraseology, the inscription tells the story of his career:

J. MARION SIMS, M.D., LL.D.,
BORN IN SOUTH CAROLINA, 1813. DIED IN NEW YORK CITY IN 1883.
SURGEON AND PHILANTHROPIST.
FOUNDER OF THE WOMAN'S HOSPITAL OF THE STATE OF NEW YORK.
HIS BRILLIANT ACHIEVEMENTS CARRIED THE FAME OF AMERICAN SURGERY
THROUGHOUT THE CIVILIZED WORLD.
IN RECOGNITION OF HIS SERVICES IN THE CAUSE OF SCIENCE AND MANKIND
HE RECEIVED THE HIGHEST HONORS IN THE GIFT OF HIS COUNTRYMEN
AND DECORATIONS FROM THE GOVERNMENTS OF
FRANCE, PORTUGAL, SPAIN, BELGIUM, AND ITALY.

On the reverse :

PRESENTED
TO THE CITY OF NEW YORK
BY
HIS PROFESSIONAL FRIENDS,
LOVING PATIENTS,
AND
MANY ADMIRERS
THROUGHOUT THE WORLD.

Marion Sims possessed a striking personality. With all his long and bitter struggle with poverty and for professional recognition, and in his early days for health and life itself, time had dealt gently with his form and face, whereon Nature had set in unmistakable lines the stamp of greatness. Although he had rounded well the years allotted by the Psalmist, his step was still quick and firm, his carriage erect, dignified, and graceful. The frosts of age had not tinged the rich abundance of his dark-brown hair, which fell straight back from off the massive forehead, for the ever-active brain and the deep-seated, searching eyes of brown asked always for the light! The brows were arched and unusually heavy and prominent; the nose beautifully proportioned and of Grecian type; the mouth well shaped, lips usually compressed, which, with the

prominent chin, bespoke courage and firmness of purpose. His face was oval, clean-shaven and smooth, and the usual expression was of almost womanly sweetness, yet it was quick to vary in harmony with whatever emotion was predominant. Away from excitement and in the home-life his expression and actions were almost boyish. He never seemed to have forgotten that he was once a boy, and he would throw himself into a household frolic with all the abandon of his early days. He was courageous to a degree, and, although he rarely lost control of his temper, yet he was at times imperious and aggressive. When occasion demanded he was a good fighter, and fought his enemies with right good will ; but he was quick to forgive, and just before his death he said to me one day, "I have forgiven all who ever did me wrong, with one exception." As said of him by a gifted orator, he possessed qualities ideal in the make-up of a truly great surgeon, "the brain of an Apollo, the heart of a lion, the eye of an eagle, and the hand of a woman."

If generosity be a fault, it was his besetting sin, and that was all the sin of which I deemed him capable.

Toward the higher civilization, the progress of man is slow. As yet the shadows of barbarism linger about him. His heroes are the destroyers, the Cæsars, the Napoleons, who covered the earth with ruin and buried beneath it countless lives, sacrificed upon the altar of personal ambition. But the time must come when those whose genius and works give life and health and happiness to the world will be first in the heart of man. In this purer temple of fame, along with those of Jenner, Ephraim McDowell, Morton, Lister, Pasteur, and others, generations yet unborn shall read the name of Marion Sims.

REMARKS ON DR. WYETH'S ADDRESS.

The President.—You have all heard with profound gratitude the history of the illustrious Sims by one so well prepared to speak with authority of him, and while the address to which we have just listened is not open for discussion, as ordinary papers are, the Association would be glad to hear in regard to Dr. Sims from some of those who were his associates, and many are present at this time.

Dr. W. L. Robinson, of Danville, Va.—When I graduated from the University of Virginia a letter of recommendation was given to me by James H. Cabell and Hunter McGuire to Dr. Sims. I presented this letter to him, and with all the tenderness and solicitude of a father he treated me for months with a consideration that could not be expected. So grateful, so tender his care, and so anxious was he of my advancement, that I have cherished his memory, and named my first boy after him.

Dr. H. P. C. Wilson, of Baltimore.—I had the good fortune to know Dr. Sims intimately. He stayed at my house frequently, and I frequently visited him in New York, and all the inspiration that I ever got in gynecology I received from him. But I rise particularly to speak of one trait, and that is, at home, in social circles, he never failed to realize that he was advanced in years, but he was a boy even to the day of his death. On one occasion, at a meeting of the American Gynecological Society, held in Baltimore, I gave a reception to the Society and to the general profession. Dr. Sims was there, and in looking around for the members of the Society, as well as the strangers and guests, I could not find Dr. Sims. I searched among the crowd, until I at last found him in the smoking-room, in the rear of my dining-room, crowded with physicians, as you generally find on such an occasion. He was on the porch. I got in the door, and said to him: "Sims, what are you doing?" He replied, "Come here, Wilson; I am having an elegant time." My neighbor's house extended a little deeper than mine, and his daughters (there were three or four of them) were peeping around the corner watching what we were doing. Dr. Sims was carrying on a little flirtation with the girls. He was kissing his hands, and the girls kissing theirs, and he carried on in this way as if he were a boy of nine-

teen or twenty years of age. This he kept up for about twenty minutes. It illustrates very nicely the character of the man. He was a perfect boy up to the day of his death, and I regard him as the greatest man that ever lived in the medical profession.

Dr. Daniel T. Nelson, of Chicago.—The late Dr. William H. Byford, with whom I was frequently associated professionally, did me the honor of introducing me by letter to Dr. Sims, as well as to the late Dr. Charles T. Parkes, who, I believe, was stimulated to do his work in surgery upon gunshot-wounds by a telegram in reference to President Garfield from Dr Sims. Dr. Sims encouraged him by this telegram to do the grand work which he did before he died so suddenly. As I said, I was first introduced to Dr. Sims by Dr. Byford, and in visiting New York a few years afterward, I had the impudence, shall I say, to call upon Dr. Sims and show him an instrument which I had devised, or rather, it was an improvement upon an instrument made by a Southern physician, and he encouraged me greatly (laughter) by saying, "Well, that is like Dr. So-and-so's, which is simply a modification of mine." On one occasion I lunched with him and Dr. Moses, of St. Louis, and he was the same boy as pictured by Dr. Wilson. A grander man never lived.

Dr. Henry O. Marcy, of Boston.—Words hardly express our indebtedness to this great man. When I first presented my card to him in Paris, in 1870, I was received with a warmth which belonged not alone to him, but to the South, and was at once introduced to his family, and from that day to the day of his death I counted myself honored in a special way by Dr. Sims's friendship. I feel under more obligations to Dr. Sims for what there is in me of enthusiasm and of love for the profession, of which he was the brightest ornament, than any other man. On the occasion of the International Medical Congress of 1881 he sat by my side. When I was to open the famous debate on antiseptic surgery, he said, "Marcy, this is the opportunity of your life. If you do not succeed to-day, heaven protect you." A few days before his death, I last saw him. He was preparing to leave for Rome. Half intuitively it appeared to us both a farewell meeting. But such men never die. Their influence increases with the coming years. May we emulate the example of one of America's greatest men!

Dr. George J. Engelmann, of Boston.—My home is beyond

the Mississippi, and in speaking of the genial, generous master in surgery, he was honored not only in the North and South, but everywhere. I speak merely as a younger man who appreciated and felt his kindness in the East and West. He was well known on the other side of the Atlantic, although we knew him better here.

I want to thank Dr. Wyeth for the eloquent tribute paid to this great master; and I wish to add that there is another Southern surgeon who was among the first to do the operation referred to successfully, one who is still with us. I refer to Dr. C. Kollock, who operated accidentally within ten days of Dr. Dudley's operation. I trust that due credit will be given to the doctor. The report was published in the *Transactions of the South Carolina Medical Society.* I saw it a few days ago in the *Medical and Surgical History of the War.*

Dr. C. Kollock, of Cheraw, S. C.—I had the pleasure of being acquainted with Dr. Sims, and had the profoundest respect for him. With all his genius, his learning, he was one of the most pleasant and sociable men I ever met. He was kind to everybody. I recollect a compliment he paid me. A woman who lived not far from where I did, probably about fifteen miles, was troubled with post-partum hemorrhages, and her husband wrote to me asking what could be done. I urged him to take his wife to New York to see Dr. Sims, telling him that Sims was a celebrated authority on the subject. His wife was five months advanced in pregnancy. He took her to Dr. Sims, and Dr. Sims asked where she lived. She told him. Dr. Sims said, "You live near Cheraw?" She replied, "Yes." "Then, you had better go and have Dr. Kollock take care of you. He will do all I can to relieve you." The woman returned, and I saw her through her labor without hemorrhage. I considered this a great compliment, and it was prompted by his generous magnanimous spirit. The patient had large means.

Dr. A. Vander Veer, of Albany.—I am not from the South, but desire to add my tribute to the memory of Dr. Sims. I knew something about the establishment of the Woman's Hospital in New York. I know something about the hard work Dr. Sims did at that time. New York City was strongly Democratic at that time. Dr. Sims was almost discouraged over the thought of getting the necessary appropriation from the Legislature at

Albany. Mr. Robert H. Pruyn, who was a leading Republican at that time and had the confidence of his party, was on the committee, and became greatly interested about the time the Act was finally passed and the appropriation made. He became well acquainted with Dr. Sims. When Dr Sims appeared before the committee he was convinced that Sims was a powerful man, and he advocated his cause so successfully that the necessary appropriation was made.

My first acquaintance with Dr. Sims was at a meeting of the New York State Medical Society in 1869 or 1870. I had a year before done an operation, which I have done but once since, and had no particular guide at the time. The patient was suffering from a fibroid tumor down in the cavity of the pelvis, presenting through Douglas's *cul-de-sac.* I could not force it up. The patient had obstruction of the bowel. I operated through the wall of the vagina, enucleated and removed the fibroid with a small obstetrical forceps. I reported the case the following year, and it was published in the *Transactions* of the Society. At that time Dr. Sims wished to speak to me. I was a young man, and was at a loss to know why Dr. Sims wished to see me; but in the kindest manner he took me by the hand and told me of the operation he had read in the *Transactions* of our Society. He said to me, "You did something decidedly original," and he was very kind and pleasant about it.

In 1878 I had referred to me the wife of the son of Mr. Robert H. Pruyn. The son said that his father had such great respect for Dr. Sims that he wished to go to New York and see him first before deciding on an operation. I said, by all means have Dr. Sims do the operation. He took his wife to New York, called on Dr. Sims, and Dr. Sims informed him that he had bought his tickets and was ready to sail the following day for Europe. He introduced himself, said he was the son of Mr. Pruyn, when Dr. Sims decided to postpone his trip. He operated at once, and she made a nice recovery. This little incident shows the gratitude of the man.

Dr. J. McFadden Gaston, of Atlanta.—Dr. Sims was born in an adjoining county to my own in South Carolina. It so happened that we had no personal relations with each other until he became prominent in the profession in New York. I was first attracted to Dr. Sims by an address which he delivered in New

York on silver-wire as a suture material. Dr. Wyeth will doubtless recollect it, although he has made no special reference to it. I had occasion to be with Dr. Sims in 1859 in New York, and to witness his cordial treatment of all members of the profession with whom he was brought in contact, and I recall a little incident which is illustrative of his disposition to avail himself of recreation. There was a woman's rights meeting in progress at the time, and he asked me to accompany him to see what was going on. We went to see the woman's rights demonstration. It was a new thing at that time. Subsequently I met Dr. Sims in 1880, and was intimately thrown in contact with him during a stay of several weeks in the city of New York, and he was kind enough to extend a perpetual invitation to me to visit his house and to be on hand at lunch hour so as to receive notice of any important work that was going on during the day. One little incident, however, occurred in connection with a lady upon whom he operated at a private house, which illustrates his management and ingenuity, and, at the same time, his interest in his profession. The patient was from Costa Rica, and it was not to be expected that he could have the presence of spectators to witness the operation who were not necessary in connection with the operation. But Dr. Sims said to me, "If you are willing now to take hold of the woman's feet and sit between her knees, you can see what is going on." I did so and had a good view of the operation.

I want to speak more particularly of the influence that Dr. Sims exerted upon me in undertaking my investigations in regard to cholecystostomy, cholecystotomy, and cholecystenterostomy. The operation which was performed by Dr. Sims I early became cognizant of, and to which allusion has been made. It attracted my attention to such an extent that I entered into correspondence with him in regard to it, and sent him a report of one or two post-mortems I had made in which there was the presence of gall-stones. I only wish to state in connection with the matter that the impulse or incentive given me in this direction was through Dr. Sims, who was convinced of the practicability of some important results being secured in this line. My experiments upon dogs along this line were really at the instance of Dr. Sims.

Dr. Louis McLane Tiffany, of Baltimore.—I trust I may

be permitted to say a few words with regard to Dr. Sims. My recollection of him dates from 1862 or 1863, when I was a schoolboy in Paris. He was known at that time in France, and was rapidly becoming known outside of that country, as has been so well said. I did not see him again until about 1871 or 1872, at which time he was in Baltimore, and I was then demonstrator of anatomy. A reception was tendered him, and I spoke to him. He held out both hands, called me by name, referred to professional matters at first, and then asked after my relatives who were in Paris some ten years before. Then he added, "You are teaching anatomy now?" How he knew it, I do not know. "What have you been doing in surgery?" So, with characteristic modesty, I said that I had been opening the abdominal cavity for gunshot-wounds, for it was not very long since his well-known paper had been published. He took me by the arm and for quite awhile talked about gunshot-wounds of the abdomen. I was much touched that so eminent a man, who had perhaps not seen me more than five or six times ten years before, should remember what I was doing, etc.

PERSONAL EXPERIENCES IN STAB-WOUNDS OF THE PERITONEUM AND INTESTINES AND THEIR TREATMENT.

By Bedford Brown, M.D.,
Alexandria, Va.

About one hundred and thirty cases of stab-wounds of the peritoneum and intestine have come under my care during my entire professional experience in both private and military practice. In less than one-third of these cases the intestine was wounded. It is a little remarkable that there should be such disproportion in the number of intestinal wounds in these cases. In other words, it is a singular fact that in a large majority of abdominal wounds the intestine escapes injury, even when these wounds are of an extensive character. The object of this paper is to discuss both simple wounds of the peritoneum and wounds also of the intestinal canal.

Stab-wounds of the intestine are either of a transverse or longitudinal form. The transverse is more apt to permit extravasation of fecal matter and to give rise to hemorrhage than the longitudinal, and also more often includes the mesentery. Stab-wounds of the peritoneum differ in many respects from gunshot-wounds. In the first place, they are clean, not usually ragged or tortuous in their course, and consequently the opening into the peritoneum or intestine is more easily detected.

In stab-wounds, without the instrument is of considerable length, there is only one fold of intestinal wound, or rather a single wound; whereas, in gunshot-wounds often three or four folds are wounded. The tract of the wound is usually

direct and not tortuous, and we may expect with considerable degree of certainty to find the intestinal wound directly opposite that in the abdominal wall.

In this class of wounds, in my experience, the colon is far the most liable to be opened than either the duodenum, jejunum, or ileum. Wounds of the small intestine, in my experience, are more inclined to cause severe and serious sympathetic symptoms, as shock, faintness, or collapse, than those of the large intestine. Possibly the degree of shock is largely due to the extent of distribution of the branches and ganglia of the sympathetic nerves involved in the wounded intestine. Previous to the present antiseptic method of treating intestinal wounds, 96 per cent. of my cases died. In both my private and military practice, I have seen wounds made by almost every variety of sharp instruments, as pocket, clasp, table, butcher, and Bowie knives, also by dirks or stilettos, sabres, and bayonets.

The form, extent, and depth of the wounds made by these different instruments differ very materially. There is also a material difference in the amount of hemorrhage resulting from wounds inflicted by these instruments, and also in the relative frequency in which the intestine is wounded. The sabre-wound is one of the most dangerous of this class in its immediate and remote results. If the edge and point of the sabre are sharp, the wound inflicted is large and deep. The weapon cutting through the intestine and mesentery, and usually passing through the abdomen, severs large bloodvessels, and causes frightful hemorrhage, which is speedily fatal. I have seen only three sabre-wounds of the abdomen, and they ended fatally in a brief time.

The stiletto, because of its sharp, long, narrow point, is a dangerous instrument, as it almost invariably enters an intestine or other organ. It does not usually kill by hemorrhage, but makes an opening in the intestine sufficiently large to permit the escape of a small quantity of fecal matter, causing septic inflammation. It is one of the most difficult of all intestinal wounds to detect.

One of the most speedily fatal wounds of the abdomen ever witnessed by me was that made from the old-fashioned Bowie knife, now fortunately discarded from civilized life. In my earlier professional life they were in common use, and the execution and damage inflicted by these weapons were something terrible in the hands of a strong and determined antagonist. When a Bowie knife entered the abdomen, the intestine was not only laid open, but the mesentery was severed, and the wound was large enough to permit the intestine to protrude. I have seen two abdominal wounds from this weapon, and the injury inflicted on the intestine and mesentery was speedily fatal from enormous hemorrhage. I have seen a large number of bayonet-wounds in battle, but do not remember to have seen a fatal case. In my experience, the bayonet-wound of the abdomen is one of the least fatal wounds of the incised or punctured form. The point of the instrument and also the edge are blunt, and when penetrating the abdomen will glide off of the intestine and stomach and rarely wound a large bloodvessel. I have seen bayonet-wounds penetrating the abdomen and passing entirely through the body, the weapon making its exit in the back, and the patient would be well in twelve days. The instrument in passing through the abdomen seems to push its way between the folds of intestine and large bloodvessels without wounding them. I saw a case of bayonet-wound of the abdomen in which the instrument passed through that cavity between the intestine, through the mesentery, impinging on the left side of the spinal column and on the descending aorta, passed out of the back between the transverse processes without inflicting serious injury on any organ. In imagination, bayonet-charges are terrible dangers to contemplate in encounter. It is ever regarded as the *dernier ressort* in battle and always dreaded. But I would infinitely prefer a bayonet-wound of the abdomen to a gunshot, as in the former the intestine is rarely wounded, while they always are in the latter. The clasp-knife, or the long, sharp blade pocket-knife, is one of the instruments most certain to open the intestine and stomach in abdominal wounds; but

even then if the point is at all dull, the instrument may glide off from the smooth coat of the bowel. Notwithstanding the great variety of weapons used in making wounds of the intestine and peritoneum, and their usual uncleanly and often actually dirty condition, in my experience a very small percentage of simple wounds of the peritoneum, when no organ is penetrated, prove fatal. Under the present methods the surgeon never dresses a wound or makes one without the strictest regard for antiseptic precautions, however insignificant that wound may be. But, time and again, I have seen instances in the case of intentional or accidental wounds of the peritoneum, often extensive and lacerated, made with all kinds of penetrating weapons, often rough and rude in construction, always uncleanly, often positively dirty, and yet when an important organ has not been entered there was a simple wound that healed without difficulty. This, to me, now when we understand more clearly the laws of sepsis and antisepsis, is a remarkable fact. I have seen these wounds made by filthy kitchen, table, butcher, and pocket knives, and uncleanly bayonets, when the organs escaped, pursue a most benign course and heal by first intention. These simple facts go far to prove that septic matter is not so universally present in air, earth, and water as is generally supposed, and again that it is more specific in character and is oftener found within the body than without. It also establishes another important fact, that the peritoneum can be wounded, exposed, handled with impunity, so long as the intestine or other important organ is not opened; but let an intestine be opened in the slightest degree, and the smallest particle of fecal matter escape, or the bladder or gall-bladder and their contents escape, and we have septic peritonitis. When an enraged man or a determined soldier plunges his weapon through the abdomen of his enemy, he does not take time to consider whether it is clean or unclean, septic or aseptic, before performing the operation. Yet in a vast majority of these stab-wounds of the peritoneum of a simple character, the wound heals without any ill result.

In stab-wounds of the abdomen sepsis, as a rule, arises, not

so much from germs contained in air, water, or earth, but from germs contained in fecal matter, in fecal or intestinal gases, or generated in putrid blood extravasated into the peritoneal cavity. I have on numerous occasions seen simple wounds of the peritoneum made with uncleanly, rusty, even what is called dirty instruments, and dressed even with dirty hands, and do as well as under the most rigid antiseptic treatment. Yet I am a steadfast advocate of absolute cleanliness in the treatment of all diseases. In the treatment of abdominal wounds perfect cleanliness is the very best antisepticism that can be practised. Chemical germicides are positively inadmissible here. If fecal matter, bile, urine, or blood is extravasated into the peritoneum, we have no correction of these by any known chemical agents. If we could, those agents would do more harm than good. All that we can accomplish in these cases is to wash every particle of the extravasation away with sterilized water. I have used sterilized water, or what we call boiled water, in dressing all wounds for forty-three years, and always with benefit. When obtainable I used it in my field hospital on the battlefield during the late war, and always with advantage.

Diagnosis of Intestinal Wounds. In all cases of abdominal wounds the question must arise, Has the intestinal canal been opened? The future of the case and the life of the patient depend upon the determination of this question. If the intestine has been penetrated, however small the opening may be, if sufficient to permit the escape of fecal matter or gases into the peritoneal cavity, this constitutes a virulent septic matter that is certain to give rise to dangerous septic peritonitis. The determination of the question whether the intestine has been penetrated in stab-wound of the abdomen is often a very difficult one to decide. The ingenious device of Dr. Senn used to detect wounds of the intestine by means of inflation with hydrogen gas is familiar to all surgeons. It is a useful device and has a very general application; but in remote sections of the country, far from large cities and towns, this means is not practicable, because of the impossibility of procuring the apparatus and generating the gas.

In all abdominal stab-wounds, my invariable rule has been, after cleansing the hands and thoroughly disinfecting them, to insert the finger and explore the intestine to ascertain if there is an opening. Yet in certain cases a wound may exist in the intestine, but it may be so small as to escape detection; but if the intestine is wounded, whether we can insert the finger or not, there is always more or less extravasation of fecal matter and gases, and if the finger comes in contact with this matter it is certain to retain for a length of time the peculiar odor of human feces so characteristic of that matter. This will always afford positive evidence of an intestinal wound.

Then, again, we may fail in our diagnosis because the exploring finger does not come in contact with the extravasated feces, when another method may be resorted to. When the patient is in more or less collapse from shock, sterilized water at a temperature of 105° or 110° may be injected into the peritoneal cavity by means of a disinfected fountain-syringe, until it escapes. If the irrigating water returns perfectly clear and entirely free from all fecal odor, we may rest assured that the intestine is uninjured. A further test in doubtful cases may be made by means of the microscope. If the irrigating water which escapes is subjected to the microscope and it contains the most minute quantity of fecal matter, it will indicate the presence of partially digested organic matter, animal and vegetable, epithelial cells, and the bacillus coli communis.

During the late war, on the battle-field, in a case of gunshot-wound of the abdomen penetrating the intestine, while the patient was suffering great pain and in a state of collapse, not knowing what better to do except to give opiates, it occurred to me that extravasation of fecal matter and blood was causing the trouble, and at that time when it was the fixed surgical rule to do nothing but to give opiates and permit the patient to die easy, I in a frame of desperation determined to inject boiled water freely into the peritoneal cavity and wash out the fecal matter and blood by means of an ordinary Davidson syringe, as I felt certain that the irrigation could do no injury, as at that time all of these cases were fatal.

The irrigating water returned thoroughly discolored with blood, with a decided fecal odor. The process was continued until the returning fluid was not only clear, but free from all unpleasant odor. The hot-water irrigation was not only the means of establishing reaction, but saved the patient, who finally recovered after the formation of a large abscess. This was one of the few cases of recovery from intestinal wound that came under my observation during the late war, and I feel satisfied that the recovery was due alone to the thorough washing out from the peritoneal cavity of all fecal matter and blood.

In this case, after the cleansing of the peritoneum of extravasated matter, the gunshot-wound of the intestine must have been closed by adhesive inflammation, but subsequently circumscribed inflammation of the peritoneum occurred which terminated in suppuration and abscess.

It is remarkable what a small quantity of septic matter in the peritoneum is required to give rise to dangerous septic inflammation. Some fifteen or sixteen years ago, in a case of femoral hernia, containing omentum, a portion of which was gangrenous, all of which, as was supposed, was carefully removed and the wound ligated, after reduction violent peritonitis set in. The hernial wound was reopened, and a long gum-elastic tube introduced into the peritoneal cavity, which was thoroughly irrigated. A very small particle of gangrenous tissue and the ligature came away, and from that time the peritonitis subsided.

In the diagnosis of intestinal wounds the degree and character of shock assume considerable importance as a means of detection. In simple stab-wounds of the peritoneum the degree of shock is usually slight, though in a sensitive, nervous system the degree of shock may be great; but in cases of intestinal injury it is more decided in character and more prolonged. But there is another shock differing from the nervous or sympathetic, the shock from great loss of blood, not always easily distinguished from the other forms, but always of extreme danger. In the hemorrhagic shock, the features

are pinched, compelxion blanched, extremities cold. But one of the most unerring symptoms of shock from loss of blood in the peritoneum is a subnormal temperature, or a serious reduction of temperature.

In cases of alarming shock from wound of the intestine, I have never seen a serious reduction of temperature except in peritoneal hemorrhage, and when a large bloodvessel is opened. I have seen in these cases the temperature begin to fall immediately after the reception of an intestinal wound and continue to go down rapidly until it reached 87°, when death ensued, and the peritoneal cavity was found full of blood from the wound of the mesenteric artery. Thus in wounds of the peritoneum we may have three distinct kinds of shock, one from simple mental shock, as alarm, fear, and dread. Another from wound of several branches or ganglia of sympathetic nerve, causing reflex depression in the action of the heart; and still another from hemorrhage. This is the hemorrhagic shock.

In my experience, a serious degree of shock in abdominal wounds indicated injury of some one of the abdominal organs. And, again, alarming collapse with subnormal temperature indicates excessive internal hemorrhage from wound of intestine and mesentery, the stomach, spleen, or liver, to be determined by the location of the wound. If in the hepatic region, it involves the liver; if in the splenic region, the spleen is involved; if in the region of the large intestine, the colon, and in the region of the small intestine the small intestine and its mesentery have been wounded and a large vessel opened. In this way, the degree of shock becomes an important aid in our diagnosis of intestinal wounds.

Traumatic, Septic, and Aseptic Peritonitis. In abdominal wounds we may have two distinct forms of peritonitis, one septic, of a most malignant character, the other non-septic and perfectly harmless. Non-septic peritonitis from trauma of the peritoneum is invariably limited and circumscribed around the immediate locality of the wound. It is a reparative and restorative process, is rarely accompa-

nied with fever, and is invariably adhesive in character. Localized non-septic traumatic peritonitis is a much more common occurrence than is usually supposed, and usually terminates in health provided no septic matter is introduced.

We find it following slight as well as extensive wounds of the peritoneum, and from other causes, as blows on the abdomen, falls, severe pressure of abdominal organs. When such injuries are attended with some degree of pain and tenderness on pressure in the locality of the wound, with or without feverishness, we may safely diagnose localized non-septic peritonitis.

This is the form of peritonitis that may arise from simple wounds of the peritoneum. On the contrary, the form of peritonitis which results from intestinal wound and the escape of fecal matter in the peritoneum is invariably septic in character and rapidly becomes general. It is invariably suppurative in form and is attended with all the indications of septicæmia, as rise of temperature, frequent pulse, great prostration, diarrhœa, and loss of digestive power. But septic peritonitis is often extremely deceptive in regard to temperature, pulse-rate, and perspiration. I have seen fatal cases where the temperature did not exceed 102°, the pulse 115, while the skin was moist and pleasant throughout the attack. I believe that in every case where intestine is wounded, however small the opening, there is invariably an escape of a certain proportion of its contents into the peritoneum as organic matter in the form of partially digested animal and vegetable matter in a decomposing state, bile, epithelial cells, bacillus coli communis, and certain intestinal gases. In case of a wound in the intestine we may invariably expect to find these materials in the peritoneum and be prepared to meet them. They are eminently septic when shut up within the body and will certainly create septic inflammation and septicæmia.

The peritoneum can be severely injured, cut, lacerated, handled, often rudely, with impunity, when it does not come in contact with septic matter. I have seen the abdomen ripped open and one or two yards of intestine protruding,

and I have also seen the abdomen torn open by a piece of shell in battle, the intestine exposed and even contused, and yet the victim recover without a sign of septic inflammation, because there was no septic matter present. It was a simple wound of the peritoneum. And, again, in a case in which the intestine was penetrated by a small knife fecal matter escaped and caused fatal peritonitis.

The peritoneum of all other membranes seems to possess the most extraordinary capacity for the absorption of infectious matter, whether in the form of human excrement, putrid blood, dead animal tissue, or pus.

TREATMENT. In all stab-wounds penetrating the peritoneum, as a preliminary measure it should be satisfactorily ascertained whether any portion of the intestinal canal has been opened before the wound is closed. When it has been decided that the intestine is intact then, and not before, the wound can be closed. In closing simple wounds of the peritoneum my invariable rule has been to close them with silver-wire sutures after thorough disinfection. Formerly I closed these wounds without regard to antiseptic measures, except that the wound was washed with hot water and soap. On the battlefield and in field hospitals wounds were washed with any water that was convenient, and were not washed at all when water could not be obtained. Previous to the introduction of antiseptic treatment in dressing wounds but little attention was paid to the condition of instruments, sutures, sponges, or dressings, except the practice of the ordinary laws of cleanliness, and the percentages of cases healing by first intention of simple wounds of the peritoneum was very large. In dressing the simple wounds of the peritoneum scrupulous attention should be paid to laws of cleanliness. I prefer the silver-wire suture inserted at intervals of one-quarter of an inch through the skin, cellular tissues, muscles, and fascia down to but not through the peritoneum, and then the ends of the suture brought together and firmly twisted. After a trial of silk and other kind of sutures I prefer the wire for these wounds above all others, as it controls the powerful

abdominal muscles better and secures adhesion and prevents hernia. I find the strong silver-wire suture in these cases when brought out and firmly twisted the most unyielding of all sutures. After the wound is closed it is then dusted with aristol, and over this an iodoform gauze compress and bandage are applied.

But in dressing these wounds I have always attached more importance to strict and absolute cleanliness than to mere technical antisepticism. In treating wounds of the intestine there are two vital procedures necessary. One is a complete and thorough closure of the intestinal wound. The other is to cleanse the peritoneal cavity of all fecal matter, blood, and gases escaping from the intestine. As certain as we neglect these important objects there will surely be a certain amount of leakage of gas or feces into the peritoneum after the external wound is closed, and we shall then have septicæmia and septic peritonitis, and our last condition will be worse than the first. Then again, if we close the wound in the intestine and also the external wound and leave one particle of fecal matter or blood in the peritoneum, no matter how scientifically the intestinal wounds may be dressed, septic peritonitis will result. Hence the treatment of a wounded intestine becomes one of the most delicate questions in surgery. I believe that in a certain proportion of those who die after the most careful closure of intestinal wounds death results from a small portion of fecal matter left in the peritoneum. In the treatment of intestinal wounds and repairing intestinal rents the most scrupulous and absolute cleanliness in all details is necessary to a successful issue. Under the old method of treating these wounds, which was simply to let them alone, as I have witnessed in past times, very nearly all died. A recovery was a rare circumstance. Death was simply regarded as inevitable. The only assistance the victim of an intestinal wound had was relief of pain. To those who have seen, and not only seen but participated in the practice, then and now, the contrast is simply astounding. Then it was gross ignorance, now it is enlightened science. As a preparatory meas-

ure in treating intestinal wounds the entire abdomen should be scrubbed with carbolic soap and hot water, then washed with sterilized water, and finally with a solution of corrosive sublimate.

Then if the external wound is not sufficiently large to draw the intestine through, it can be enlarged, when the intestine is drawn out and its contents gently passed on below the wound and the part thoroughly washed with hot sterilized water. Some fourteen or fifteen years ago, in a case of stab-wound of the intestine penetrating the colon about one and three-quarters of an inch in length, after the external abdomen was thoroughly cleansed, then the intestine was withdrawn and washed in boiled water. In the flaccid state of the bowel I found difficulty in suturing the wound. I then prepared a small globe or ball of cocoa-butter combined with 5 per cent. of white wax, inserted it into the lumen of the intestine, and, on this firm substance as a basis, conducted the process of suturing with ease and expedition to the end, when the globe was left in the intestine to pass through the canal. I found in this case that the process of suturing was greatly facilitated, could be done with more dexterity, and that I gained time in the operation, which in these cases is a valuable consideration. The cocoa-butter globe is either wholly or partially dissolved in passing through the intestinal canal, is perfectly innocuous after disinfection, is unirritating, and is in every way desirable for this purpose.

I do not know that any material can be found that is better suited to the purpose. The globe may be made either spherical or oblong to suit the form and extent of the wound. After the cocoa-butter globe has been inserted into the lumen of the intestine and held steadily by an assistant, then the suturing process is conducted by means of the Lembert suture, made of the finest antiseptic silk.

At the same time the normal temperature of the intestine must be maintained by constant application of hot cloths saturated with sterilized water, and the temperature of the operating-room kept as near the temperature of the body as possible.

After the intestinal wound is repaired, then the organ is returned to the abdominal cavity, the peritoneum thoroughly irrigated and cleansed until the irrigating water returns clear and perfectly destitute of the slightest fecal odor, and continued as long as the faintest odor of this kind exists in the irrigating water, as this is probably the only correct evidence we have that all fecal matter and blood have been removed. Then the external wound is closed with silver-wire sutures. I desire here to renew my confidence in the wire suture in closing wounds in the walls of the abdomen. It is firm, strong, and unyielding, and maintains more steadily in opposition the tissue, and I think insures more certainly adhesion than other sutures. I think this strong suture is necessary to counteract the contraction of the abdominal muscles. Then the wound is dusted with iodoform, followed with a compress of gauze and bandage.

Simple Method of Reducing a Protruded Intestine in Stab-wounds. Often in wounds of the peritoneum more or less protrusion of intestine occurs, and at times much difficulty is experienced in reducing the protrusion. In these cases various methods have been resorted to to accomplish this purpose.

The method that I have found the most simple, expeditious, and safe is to have two long, slender curved needles threaded each with a silken cord ten or twelve inches long. One of these needles is passed midway through the margin of the wound, the other needle is passed through the opposite margin, and then each cord is tied in a separate loop. These cords are drawn in opposite directions by two assistants, upward and outward, firmly and tightly. By this means the wound is made to expand or gape widely, and at the same time the walls of the abdomen in a large area around the wound are very considerably elevated above the intestine, while the patient reclines in the dorsal position, and a considerable vacuum is in this way created, and the intestine will glide back without force or manipulation, to fill this newly created vacuum.

Tissue-drainage in the Treatment of Traumatic Septic Peritonitis. So long as the peritoneal cavity contains serum, blood, or pus, mechanical drainage is not only applicable but necessary; but when infectious matter has been absorbed by the peritoneum and then into the blood, and lights up septic peritonitis and septicæmia, the infectious matter has passed beyond the reach of mechanical drainage, and then tissue-drainage must take its place. Drainage, either local or general, is the sole means, no matter how accomplished, by which we remove noxious matter from the system, whether in the removal of infectious fluids from the cavities of the body, by drainage-tubes, by irrigation or other local means, or by draining the tissues involved through the vast surface of the intestinal canal. After hemorrhage in intestinal wound then we know that infection is the prime consideration. There is a way to lock up this infection in the circulation and tissues, by means of opiates and astringents, and permit it to do its deadly work, and there is a way to drain this infection from the tissues through natural channels. This may appropriately be termed *tissue-drainage.* For ages, except in the minds of a few practical men, the use of cathartics in the treatment of traumatic peritonitis was totally discarded as dangerous to life. We now know that infectious matter can be readily drained from the peritoneum through the mucous coat of the bowels. If we will view the subject of drainage in its broadest sense, its widest application, and its great variety of uses, we shall find that it is one of the most important and comprehensive principles in nature and that it is involved in a vast majority of the natural operations. We can utilize this principle not only for the prevention of disease, but also for its cure. We find now that the tissues involved in inflammation, for instance, traumatic peritonitis, can be to a considerable extent drained not only of redundant blood, but by what is of much more importance, infected blood, by means of active catharsis, and in that way we are often able to subdue dangerous peritoneal inflammation. It would appear that this treatment is only

applicable to the primary stages of peritonitis, before pus-formation. When pus is once formed then the case becomes one alone of surgical character; but so long as peritonitis is of a serous character, or when the peritoneum contains only serum and is in a state of inflammation, we can reasonably expect much from tissue-drainage.

Dudley understood this principle very well and taught it in his lectures sixty years ago. Mateau, a distinguished surgeon of Virginia, advocated the practice thirty years ago in an able paper published in the *Richmond Medical Journal.*

I believe that it is the consensus of opinion that only two varieties of cathartics alone are applicable to this treatment—calomel and sulphate of magnesia. These agents to accomplish good must be pressed to the extent of very copious drainage from the intestinal canal.

When mechanical drainage is impracticable or not available, either by drainage-tubes or irrigation, then, in peritonitis of non-purulent character, we have this resource at our command; but when pus is once formed in the peritoneal cavity then all medical treatment ceases to be available, and surgery is our only resource.

For ages the use of hydragogue cathartics in the treatment of peritonitis was unconditionally condemned, and the opium treatment was adhered to, notwithstanding almost every case proved fatal.

Treatment of Shock from Intestinal Wounds. In simple wound of the peritoneum, where no internal organ was involved, I have never seen shock of a serious character. I desire here to speak of those cases of profound and dangerous shock met with in injury of one of the principal abdominal organs, and in my experience such cases of shock of this character are really cases of collapse from internal hemorrhage, and should be so interpreted. As previously stated in this paper, when the temperature falls and continues to fall, in these cases we know that the system is being drained of blood rapidly, and the only thing to do if we wish to save life is to open the abdomen, irrigate the peritoneum with ster-

ilized water at 110° or 115°, wash out the coagulated blood and fecal matter, tie the wounded vessels, and arrest hemorrhage. This is really in this form of shock the only means of bringing about a permanent reaction and correcting shock. In hemorrhagic shock, while the wounded vessels are pouring out blood and draining the circulation, all the stimulants, cardiac and diffusible, that can be poured into the system will avail nothing. Hence the vital importance in intestinal wounds of discriminating between nervous shock and collapse from hemorrhage. In many general features they bear a very close resemblance. In the one form of shock cardiac stimulants such as strychnine, atropine, minute doses of morphine inserted under the skin, combined with alcoholic stimulants, do well; but in shock from hemorrhage, while these remedies may be given for temporary purposes, nothing but the arrest of hemorrhage will save the life of the patient. In these critical cases it becomes an important question to be decided whether, when the patient is in a state of collapse from hemorrhagic shock, the operation should be proceeded with while the patient is in that state, or should it be deferred to await reaction, and, again, whether he could bear an anæsthetic. In such cases reaction will never come until hemorrhage is arrested. This is one of the kind of cases that surgeons occasionally encounter when it becomes necessary to operate in the middle of a dangerous shock, really when the patient is in a state of collapse. If we wait for reaction, it will never come. Hence, he must be well posted in which is shock from hemorrhage and then he is prepared to act promptly.

I believe that in these cases anæsthesia by ether, in connection with cardiac stimulants, will, even under apparently desperate circumstances, produce temporary reaction and sustain the patient until the abdomen is opened and the wounded vessel searched for and tied. In cases of shock from hemorrhage in the peritoneum, another means available to sustain life until the abdomen can be opened and the bleeding vessel ligated is the subcutaneous injection of warm saline solutions. I have tested the value of this procedure in one case of dan-

gerous uterine hemorrhage with advantage, and I feel very certain that it can be applied with equal advantage in shock from peritoneal hemorrhage to sustain life while the vessel is being searched for and ligated.

DISCUSSION.

Dr. Richard Douglas, of Nashville.—I simply rise to express my appreciation of Dr. Brown's work. The papers he has contributed to this Association annually are an excellent *résumé* of the history of the progress of surgery, and we note in this paper, which comprises his work of forty years ago, how different it was from his practice of to-day. It is worthy of note to see a man of his age keep abreast with the progress of surgery. I rise particularly to express myself upon two or three points, and first, with reference to shock. Dr. Brown gave us two or three causes of shock, to which I think we should add another, which is a more potent factor than any mentioned. I refer to septic intoxication. It does not appear so early as the shock of hemorrhage, but when it does appear the patient never reacts from it, and it occurs with other symptoms.

He also mentioned a bolus of fecal matter as being an element of danger. I would say that it may be likened to a cage in which is confined a venomous animal, that it is the germs that are in this bolus of fecal matter to which we must look for the danger. In peritoneal wounds we always have a mixed infection, which is, of course, more serious than infection from the colon bacillus or from other causes. Peritonitis, no matter whether local, adhesive, general, or septic, I think, should be considered of germicidal origin. I should mention one other fact that I think is worthy of consideration, and that is, in using saline injections to restore the patient from shock, they are futile unless you have control of the bleeding point. The fluidity of the blood is increased, the hemorrhage goes on, and the saline injections should be resorted to after the abdomen is opened, and when you have caught the bleeding point; then is the time, not before, in my experience.

With reference to closing the abdominal wound, in passing the suture down to but not through the peritoneum, I think it proper

always to approximate the peritoneum. I think we lessen the danger of hernia after approximating the peritoneum.

Dr. C. A. L. Reed, of Cincinnati.—In rising to discuss the excellent contribution of Dr. Brown, I note that he failed to indicate, except perhaps by implication, that in the exploration following the infliction of the wound he would sometimes enlarge the original incision. This I have found it necessary to do in the few instances of stab-wounds of the abdomen which have come under my observation. These wounds may properly be called penetrating which are strictly of the stab-character. I am apprehensive that the mere exploration of the wound by the introduction of the finger may at times prove misleading. While our tactile sense may be very erudite and our olfactories may be sufficiently acute to detect odors that may cling to our fingers, still I believe in certain cases it is exceedingly important that the original incision should be enlarged, and that part of the viscera lying immediately beneath it brought out and carefully inspected. This adds but little to the danger, if carefully done.

The symptomatology of these cases is important, and it is none the less important because it is frequently misleading. It is not always easy to discriminate between the symptoms of purely nervous shock and those which arise in large part from hemorrhage, and it should be remembered that in certain of these cases that the hemorrhage is not at once apparent, and its source not easily detected. For the purpose of clearing up this point, it occurs to me, even in the presence of shock, that we ought to give our patient the benefit of the stimulation which may ensue from the administration of ether, open the incision and make a very careful exploration. In these cases we certainly ought to be very chary over methods, because the oversight that may occur in the time of our initial attendance is fraught with serious consequences to our patient.

The use of silver-wire suture seems to be growing in favor, but, with Dr. Douglas, I am inclined to believe that whatever suture-material is to be employed the peritoneal margins ought to be carefully approximated.

It is an interesting fact for us to note in this paper that intra-peritoneal irrigation of the most thorough and aseptic sort was practised by the distinguished essayist as long as three decades ago. We have been in the habit of looking upon it as a feature

of modern surgical practice, and one of the characteristics of the later-day boldness of surgery, yet here upon the battlefields of Virginia were practised thoroughness and great fidelity of aseptic detail during the Rebellion.

Dr. Brown.—I commend the remarks of Dr. Douglas, and I agree with Dr. Reed in one particular certainly, that probably it would be better in all wounds of the abdomen to enlarge the wound and explore it thoroughly. I think it is a good idea. I should like to hear the opinions of other surgeons on the subject of stab-wounds of the abdomen, as it is important and interesting.

Dr. James Evans, of Florence, S. C.—There is one point in Dr. Brown's paper in regard to the admission of air through penetrating wounds of the body. I remember to have seen and treated a number of bayonet-wounds during the late civil war. I can recall now nine men who were wounded in this manner, the bayonets having been driven through the walls of the chest in two or three of the men while lying prostrate, thus pinning them to the ground, yet recovery followed in every instance the infliction of these severe wounds. The peculiar shape and character of the wound inflicted by the bayonet have much to do with the kindly way in which it is disposed to heal. The bayonet makes a wound somewhat triangular in form, and as its point and three edges are dull, lacerates rather than makes a clean cut through the tissues of the body as it penetrates them, pushing the blood-vessels to one side instead of dividing them, and, in consequence, very little hemorrhage, as a rule, occurs. The division of the skin is stellated and linear, pressed in at the wound of entrance and pressed out at the wound of exit; but when the bayonet is withdrawn it leaves both wounds on a level with the skin immediately around them, their edges in close apposition, and thus if any cavity of the body has been penetrated, the opening becomes virtually hermetically sealed.

In another instance: a soldier wounded by a Minie-rifle in the abdomen, the ball penetrating the cavity about half an inch from the navel and making an opening through which a part of the omentum, nearly the size of my two hands, had extruded. As the man had been wounded several hours the omentum was not in a condition to be returned, a double ligature was therefore thrown around it on a level with the skin and the mass removed.

In the case of this man the opening into the cavity of the abdomen was hermetically sealed by the omentum, and the recovery was rapid and without a single untoward incident.

Penetrating gunshot-wounds of the abdomen differ widely in regard to the amount of shock and pain which they produce. In some individuals the shock is profound and the pain of the most agonizing character, which even repeated exhibitions of morphine fail to relieve; then again, there are cases so free from shock and pain, even where the gut has been wounded and fecal extravasation is taking place, that it is difficult to convince the patient that he has a serious and probably fatal wound.

Dr. A Vander Veer, of Albany.—There is so much good material in this paper that a few of the points should be discussed more fully. We have had evidence of the progressive work which Dr. Brown has done during his life, and is still doing. I have always made it a practice to inquire carefully as to the kind of weapon with which the wound has been made. I endeavor to find it out, if possible, look at and carefully examine it. I saw some of the wounds during the war that were made by bayonets, and I do not recall any case where the intestine or stomach was penetrated by the bayonet. In my private practice I have seen wounds made with a short, sharp knife, such as is used by shoemakers. As they sharpen it from time to time, the knife gets shorter and shorter, and I have seen wounds made with that kind of instrument, going through the abdominal wall and puncturing the intestine or stomach.

We have in our city on certain streets a population very fond of using razors.

Dr. Brown.—That is a favorite instrument, doctor, among the negroes in my district.

Dr. Vander Veer.—It is the colored population that I mean, and in these cases we do not have to enlarge the wound. But we know that we have something to deal with that requires a careful examination of the abdominal cavity. Of course, that kind of weapon will cut the intestine.

I believe Dr. Brown should have credit for the one point he has brought out so earnestly, namely, flushing the peritoneal cavity, which he did so ably years ago, watching carefully the appearance of the fluid as it makes its exit from the point of the wound. He did not have to go so far as to use a microscope.

If the water comes out clear, it is evident that there is no bleeding, and that everything is in an aseptic condition. By this means he is enabled to search for an injury or a slight opening in the intestinal tract without resorting to the more elaborate use of Dr. Senn's method.

As to treating stab-wounds of the abdomen, there should be no delay. The surgeon who is called to see a case of stab-wound of the abdomen should look the patient carefully over, and particularly the place where the wound has been inflicted, and act intelligently at that time. He must do what is to be done for the patient then and there. He should not delay twenty-four hours, not wait for more symptoms to present themselves, and if he realizes that there is fecal matter extravasating into the peritoneal cavity, then he must make a cœliotomy, open the wound thoroughly, and find the point of extravasation. It may be very small, requiring only one or two sutures to close the wound, but that must be done. Just as cases of perforative appendicitis terminate fatally, so will these slight stab-wounds of the intestinal tract terminate, if left untouched. Unless the surgeon does his work thoroughly in the beginning, the case will go on to fatal septic peritonitis.

I would like an honest expression from the members as to how many cases of perforative appendicitis or septic peritonitis they have seen recover.

Dr. Hugh T. Nelson, of Charlottesville, Va.—I have listened with interest to the able paper of Dr. Brown, and desire to say that the necessity for enlarging the abdominal wound is, under all circumstances, an imperative one. I remember a case of abdominal wound made by a knife in which the small bowel was wounded, and the patient refused operation for twenty-four hours. He was confident that the viscus was not cut. However, symptoms became alarming at the end of this time, and he consented to have an operation done. I opened the abdomen by a long incision and found it impossible to remove from the peritoneum the extruded contents of the bowel, from the fact that adhesive inflammation had taken place and had agglutinated the intestine so firmly that I could not wash them away. The peritonitis having become general, there was but one course for the patient to take. He died. I do not think it is out of place to enlarge the abdominal incision, and the sooner it is done the better.

Dr. George Ross, of Richmond, Va.—I am very much interested in stab-wounds of the abdomen, because cases of this kind occasionally come under my observation. I am particularly concerned about the question of shock, and would ask Dr. Brown whether there is any way of distinguishing between the symptoms of nervous shock and shock due to hemorrhage.

Dr. Brown.—I stated in my paper that one of the most unerring symptoms was rapid reduction of temperature; but I do not think we have any symptom or symptoms that will enable us to discriminate accurately between the different forms of shock except the gravity of the condition. In all cases of shock from peritoneal hemorrhage that have come under my care I found that there was a rapid corresponding reduction of temperature in proportion to the amount of hemorrhage. That has been my experience.

Dr. W. E. B. Davis, of Birmingham, Ala.—The essayist referred to the fact that an injury to the gall-bladder would produce a septic peritonitis. I grant that such an injury will produce a peritonitis which will result in death very soon, if there is a large escape of bile into the peritoneal cavity, but I do not believe that it would be a septic peritonitis. It is a simple peritonitis, such as a chemical irritant would produce.

In regard to stab-wounds of the abdomen, I think it is impossible for us to tell when we have shock with hemorrhage and without it after an abdominal wound. I believe the great majority of cases of shock following abdominal injuries are due to hemorrhage, and that hemorrhage plays a much greater part in the production of symptoms in abdominal injuries than we were formerly led to believe. It is the hemorrhage from these wounds that often causes early death. In those cases in which death occurs in forty-eight hours the hemorrhage is usually very free. It is not often that patients die from a peritionitis in forty-eight hours. If they do, they have been reduced by hemorrhage or from some other cause.

Dr. John D. S. Davis, of Birmingham, Ala.—It is remarkable that we have a report of 130 cases of stab-wounds with less than three perforations of the bowel. To my mind, there is only one explanation for that, namely, that many of these injuries were due to spent balls, and on account of the character of the ball the bowels were not injured.

Dr. Brown.—Permit me to correct you. You mistake. The number of cases of intestinal wounds was one-third.

Dr. Davis.—As to the method of diagnosing these cases by Senn's hydrogen gas-test and the flushing method, I have very little confidence in either. I think they are both dangerous procedures, and in the hands of inexperienced practitioners will prove a failure. I think a practitioner who is not in the habit of constantly using the Senn test, who has not practised it often, will fail. The flushing itself is dangerous. I have often opened the abdomen and have been unable to wash everything out of it as thoroughly as I desired. I have seen some perforative wounds of the abdominal viscera where it was impossible, from the character and location of them, to flush the abdominal cavity through the opening sufficiently to clean it thoroughly. It is a difficult thing to do sometimes when you have the abdomen open.

In addition to the three forms of shock described by Dr. Brown, I agree with Dr. Douglas, that there should be added the shock of sepsis. With reference to differentiating the forms of shock, I think it is impossible to do it. It is true that sometimes we think we have a nervous shock, or some other form of shock, when we have hemorrhage, and it is the hemorrhage in the majority of cases that kills.

Dr. Brown (closing the discussion).—I am glad my friend, Dr. Evans, confirmed my statements in regard to the mortality of bayonet-wounds, and also Dr. Vander Veer.

In regard to the question of shock, I think Dr. W. E. B. Davis is correct, that the great majority of cases of shock are due to hemorrhage. Indeed, I will venture to say that all cases of violent or dangerous shock are due to it.

In regard to the statements of Dr. Douglas, with reference to closing the peritoneum, I have always left it untouched in closing simple wounds in the abdominal wall, and I have found it good practice. What you have found good practice in quite a large series of cases you are apt to cling to. I have never had hernia result from it, and I have had no difficulty in the way of union by first intention.

I am very glad that the members have discussed my paper at length, for I know this is an interesting and important subject.

REPORT OF SEVEN CASES OF ABDOMINAL SURGERY IN WHICH THE MURPHY BUTTON WAS APPLIED.

By A. Vander Veer, M.D.,
Albany, New York.

Mr. President and Gentlemen: I am not unmindful of the fact that the reporting of clinical cases is not always the most interesting material to present at such a meeting as this. On the other hand, the seven cases here presented have a bearing upon the use of the Murphy button that is now receiving much attention, not only in this country but abroad, and as a method of intestinal anastomosis is being placed thoroughly on its merits. It is difficult to understand some of the unfavorable reports made by English and German surgeons, when we contrast the very successful results indicated by so many of our American operators in the application in a practical way of this mechanical contrivance. Perhaps there is no part of surgery that, within the past quarter of a century, has presented so much in theory and in which there has been so much disappointment, when practical use has been made of the suggestions, as in the field of abdominal work with all its complications. In other words, how much we have changed from time to time our methods of treatment of many complications, and yet, withal, there have come certain reliable advances that have met all requirements for which they were indicated, leaving permanently in our possession the comforting thought that a grand progress in the sum total has been made; that we can treat all manner of pathological conditions, traumatisms, malformations, etc., of the intestinal

tract and abdominal cavity with less embarrassment than perhaps in any other part of the body, and yet there are very few portions of the human system upon which we operate where more rapid thought and best judgment are to be employed than in abdominal work. The best methods for meeting this and that complication must be adopted at once. There can be no great delay; temporary dressings cannot be applied for the time being; expectant surgery has no field here. We must meet the emergencies, and I desire to emphasize that much is still wanting in discussions occurring in our special societies; we need less from a theoretical standpoint and more of practical experience. Therefore, in presenting the following cases, with such remarks as each one seems to call for, I am desirous of simply placing on record facts which may assist in future operations, and aid us in our final determination of certain procedures when conditions present that require their employment. It is seldom that so small a group of cases cover so wide a range of pathological conditions.

There can be no doubt that the consensus of opinion to-day, among operating-surgeons dealing with abdominal cases, is that when we come to intestinal anastomosis our patient is not infrequently in a serious condition as regards strength, and, all things being equal, that method which will give the most rapid and safe manner of procedure is the one that is to claim our attention. Rapidity of action at such a time is absolutely necessary, and yet with it must be combined thorough safety.

If with carefully reported cases, when some new surgical procedure is on trial, we could have also a report of the same cases later on as to results, etc., we would then reach a more honest and clear conclusion than is sometimes accomplished.

Case I. *Gastro-intestinal anastomosis for carcinoma of the pyloric end of the stomach.*—Mrs. J. C., aged sixty-five years; widow, six months' pronounced symptoms of carcinoma of the pyloric end of the stomach. Family history good; pretty continuous vomiting, at times in large quantities; emaciation very pronounced; much pain and suffering. Patient very

desirous of an operation, although distinctly told that the chances were decidedly against her, as she had for some time realized. All other organs in a healthy condition. An anastomosis made by means of the medium-sized Murphy button, between the upper end of the jejunum and greater curvature of the stomach. Patient was really very comfortable after the operation, but died from exhaustion on the third day. On examination the button was found in excellent position, union quite pronounced, and all surroundings favorable.

These are the desperate cases that present at times to the surgeon for relief, with very little chance for recovery in any operation except they be reached early. It is yet a mooted question whether we ought to operate at this stage or not. I am of the opinion that the weight of argument and results are against doing any operation when the patient is so weak and emaciated.

CASE II. *Carcinoma of the sigmoid flexure, removal and end-to-end anastomosis.*—Mr. W. T., aged sixty-two years; native of the United States; machinist by occupation. Family history: mother died of consumption, also two maternal aunts; father died of some heart trouble, aged seventy-two years; one sister living; one died in infancy, and one of consumption, aged sixteen. Personal history: Patient well, save an attack of pleurisy thirty years ago. February, 1893, had attacks of pain and colic after eating, lasting only a few hours. At this time pain occurred at intervals of two and three weeks, but since has increased in frequency and severity until prior to operation, when pain was almost constant. Bowels seldom moved voluntarily, injections being necessary, and tube passed to remove gas. Feces passed in small, hardened masses, accompanied by pain, occasionally ribbon-shaped and clay-colored. Pain referred to lower portion of bowel in region of sigmoid flexure and up left side of abdomen. Entered Albany Hospital February 1, 1894, and diagnosis made of stricture of intestine, lower portion descending colon, probably malignant. Operation performed February 3d, consisting of removal of mass in connection with sigmoid flexure,

three inches in length, and an anastomosis of the large intestine by means of the Murphy button. Operation revealed cause of constriction to be carcinoma. Mass much adherent to the surrounding parts, which rendered the operation difficult. Wound closed by silkworm-gut sutures, with a tampon of iodoform gauze as drainage in most dependent portions, latter removed on second day and rubber drainage inserted. Patient presented on third day all the marked symptoms of obstruction of the bowels. Up to this time he had been quite comfortable, passing more or less gas per rectum. He now began to vomit, and distention from intestinal gases was so great that I found it necessary to open the abdominal incision, bringing up a portion of the small intestine and attaching it to the edges of the wound. Very free discharge followed, and the patient became more comfortable, but finally died from exhaustion on the eleventh day. On examination the ends of the intestine had united and the button was found loose in the lower portion of the rectum, about two inches within the anus. The patient was much exhausted and emaciated previous to the operation.

Cancer of the sigmoid flexure is one of the most difficult conditions in intestinal surgery that we have to deal with. At the time of the operation I was fearful, and said to my assistant that there was great danger of the button impinging too much upon the crest of the sacrum, and I believe that this was really the after-condition that caused the obstruction. I scarcely think I would use the button again when doing the same kind of an operation, and yet I have been equally disappointed in doing an end-to-end anastomosis in similar cases by other methods, and must say that the use of the button saves an immense amount of time and anxiety.

Mathews says that the prognosis in cancer of the sigmoid flexure is very bad, and that there are but two operative procedures: (1) Colotomy, (2) Extirpation. In the former operation he thinks the question of operative procedure should be decided rather by the patient than the physician. In dealing with the subject of excising the sigmoid flexure for cancer he

would be inclined to class it as a piece of unjustifiable surgery, except that in several reported cases excision has been practised successfully, notably the one reported by Dr. W. T. Bull, of New York.

CASE III. *Removal of gall-stones from the gall-bladder, using the long drainage-tube button.*—Mrs. H. J. D., aged thirty years; excellent history in every respect; had suffered seriously from attacks of gall-stone colic for a period of five years or more. Had had a great variety of treatment from many sources with little benefit. Never jaundiced, and not infrequently received the opinion that her case was probably not one of gall-stones. I had advised an operation in 1892, but patient was reluctant to have it done. Her sufferings became so great, however, that she consented, and operation was done November 13, 1894. Gall-bladder easily reached in the usual manner, and several calculi could be felt. The long Murphy button was made use of and the operation was then exceedingly simple. Three gall-stones were removed at once and wound closed without any difficulty whatever. A rise of temperature on the second day to 101°, but on the morning of the third day it became normal and remained so through her entire sickness. The button came away on the eleventh day, wound healed without difficulty, although patient vomited very freely from effects of ether for a period of thirty-six hours. After removal of the button two more gall-stones were removed through the sinus; wound completely healed at the end of third week, or about twenty-second day.

This patient has been absolutely healthy since, has had no return of her trouble whatever, has gained in flesh, and feels very happy in her recovery.

In all my operations upon the gall-bladder (cholecystotomy and otherwise) in no single instance was the operation done with such absolute ease, and done so quickly as this. When once it is shown that the gall-stones are confined to the gall-bladder, that they are yet outside of the common duct, surely this operation is the easiest of any yet devised. I believe it is much quicker and much easier of performance than the

operation of removal of the gall-stones and immediate suture of the gall-bladder, and I have no doubt that the results will prove equally as good.

CASE IV. *Removal of eight inches of the small intestine with papillomatous ovarian cyst. End-to-end anastomosis.*—Mrs. A. S., aged forty years; widow; history of a rapidly developing abdominal tumor during a period of six months. Patient also gave a history of epileptic seizures extending over a period of ten years, more or less.

Operation January 14, 1895: Multilocular ovarian cyst connected with the left ovary, papillomatous in character, with very many adhesions. Unilocular ovarian cyst on right side removed with very little trouble. On removing the tumor on left side a coil of the small intestine, about eight inches, was so completely imbedded in the growth that it became necessary to do an intestinal resection. More than eight inches of the ileum were removed and the ends brought together by the Murphy button, making the operation exceedingly simple. Patient was very nervous for some time after the operation; no vomiting; catheter was necessary, and the hypodermic use of morphine, as she had been accustomed to it before. On the third day there was a free movement of gas, and on the eighteenth day a well-formed movement of the bowels. Patient two days after this had two very decided convulsions, and then remained partially delirious for more than a week. Stools were watched carefully for appearance of the button. On the nineteenth day, while in care of her daughter, she had three movements of the bowels, which were thrown away without being examined, and it is very likely that the button passed at that time, as it was never found in stools passed afterward. This patient made a most remarkable recovery, and is now in absolute health, having gained more than twenty pounds in flesh. She has had no convulsions since the few immediately after the operation, her abdomen seems soft and in good condition, and she apparently has made a perfect recovery.

When I consider the ease with which this operation was

performed compared with some others in which I have done anastomosis by the older methods, I must express myself as feeling exceedingly grateful to Dr. Murphy for his valuable contribution to intestinal anastomosis. There are few more trying positions for the abdominal surgeon than to come in contact with an abdominal tumor that necessitates resection of a portion of the small intestine. The operation is generally long and tedious and the patient much exhausted when the point is reached of spending one-half or an hour in some other method of bringing together the ends of the intestine. The saving of the strength of the patient is here the great necessity.

CASE V. *Anastomosis of gall-bladder with small intestine.* —Mrs. O., aged fifty-four years; good family history, and patient in good health up to the summer of 1894, when, during July and August, she suffered some distress, supposing it to be due to her menopause. Last menstruation August, 1894. In September she had some attacks of gastric disturbance supposed to be simple congestion of the liver. Never had any severe colic; no attacks like that of passing biliary calculi. The early part of September she developed quite a severe attack of sciatica, left side, from which she gradually recovered, but the second week in October began to develop a condition of jaundice which became very severe. I saw her first April 10, 1895. She had suffered greatly during the winter from itching and nausea, loss of appetite, loss of strength and emaciation. Her pulse was feeble, and she had many ecchymotic spots, the entire body so jaundiced it had almost the appearance of mahogany. Urine was loaded with bile; kidneys otherwise apparently healthy; movements of the bowels were very light in color and had been so for months. She had been recently earnestly advised by her physician not to have any operation, and yet no positive diagnosis given except that of jaundice. I was in doubt as to this being a simple case of catarrhal stenosis of the common duct, or a case of cancer of the liver. Gall-bladder was somewhat distended. I advised an immediate exploration, which was consented to at once by

herself and family. Usual incision. Gall-bladder found distended, and twelve ounces of bile carefully withdrawn by means of the aspirator. Thorough search failed to find any nodule, cancer of the liver or stomach, or gall-stones present. An immediate anastomosis was made between the gall-bladder and lower end of the duodenum, or upper portion of the jejunum, by small-sized Murphy button. This patient did nicely after the operation. Full movement of the bowels on the third day and afterward by aid of oil enemas. Button passed on twelfth day, after she had had several good movements of the bowels. Soon after this a marked change was apparent in the passages, being yellow and dark in color; her appetite returned, and in every way she continued to improve. At the present time she is in good health, has gained in flesh, is much stronger and able to move about. She is practically well as regards her appetite, digestion, and general condition.

Case VI. Mrs. J. J., aged thirty-four years; three children; family history indefinite; patient not strong; general appearance good; menstruated at thirteen; regular but painful. Hernia at umbilicus presented at first confinement; never reduced; pain more or less constant. Two confinements since, natural in every respect. Bowels constipated. October 3, 1895, while straining at stool, suddenly taken ill; tumor increased in size; vomiting and much pain. Was called to see her on Monday, October 7th, at her home, some fifty miles distant. Learned that on the previous Saturday she had vomited contents of stomach, and had had a slight movement of the bowels, but none since. Vomited once on Sunday, and once at twelve o'clock on Monday, a yellowish substance, also some portions quite dark in color; had passed some gas from bowels during past forty-eight hours. There was a strong inclination to eructation of gas; able to take very little food; was not thirsty, and drunk but little. Had had three compound cathartic pills without causing a positive movement of the bowels; required a moderate amount of morphine to get rest and relief from pain. Her condition of pulse was 88; temperature had been 101°, but now normal; tongue moist

and clean; eyes had a sunken appearance, and there was rather an anxious expression of countenance; abdomen soft, except in immediate vicinity of umbilicus. Tumor greatly inflamed and presenting signs not unlike an acute abscess. Amount and condition of urine normal. There was no distention of abdomen nor the appearance of complete obstruction. I ordered the patient removed to Albany Hospital on midnight train on account of her surroundings. She entered the hospital on the morning of the 8th of October, at three o'clock, and operation done at 10 A.M. Tumor, size of cocoanut, in immediate vicinity of umbilicus; portion, size of a silver dollar, implicating umbilicus, in a gangrenous condition. On making an incision there was found a strangulated hernia; many old and firm adhesions. Peritoneum intensely congested, very dark in color. Loop of small intestines included in tumor gangrenous for space of ten inches. Vessels in mesentery secured, and this portion of intestines excised. Murphy button used for end-to-end anastomosis. Two Lembert sutures made use of outside of button. Gangrenous intestine, large portion omentum, some mesentery and peritoneum removed with mass. Wound closed by silkworm-gut sutures; no drainage. After operation patient vomited dark, greenish fluid, and complained of severe pain in the back. Secretion of urine continued normal. Complained of considerable nausea, and continued to vomit at intervals a greenish fluid, from two to six ounces in quantity. At 3.15 P.M. on the 9th she had a large movement from bowels, evidently from that portion below the point of anastomosis. After this vomited a small quantity of clear fluid, still complaining of distress in stomach. At 7.15 P.M. of the 9th, had another small movement, and again at 10.20 P.M. No vomiting after this. Was given only hot water and rectal enemata of whiskey and hot milk at intervals of about four hours. At 12.30 A.M., on the 10th, had a large fluid movement from the bowels, and another at 3 A.M. After this rested very comfortably and in every way feeling nicely. Was allowed some coffee, milk, beef extract, chicken broth, etc., from this time on. At 8 A.M. on the

10th she had another small movement of the bowels, and one at 11 A.M., natural in form and color; 2.25 P.M. had a large movement, a small one at 6.15, and then several in succession. Patient now tolerated various kinds of nourishment; her bowels continued to move two, three, and even four times in twenty-four hours, passing gas freely. At 5.30 P.M. the 21st, thirteen days after the operation, the button was passed, followed by a large movement of the bowels. On the 24th she had several movements of the bowels, and after this her bowels acted in a normal manner.

This patient made an uninterrupted recovery, and returned home in excellent condition.

This case illustrates the position that the abdominal surgeon is sometimes placed in. One could hardly believe from examination and symptoms that there was present such a gangrenous condition of the small intestines. I really had concluded that the tumor was made up mostly of omentum, and that the gangrenous spot to be observed on the surface would be found to be connected with gangrenous omentum, but, as soon as the sac was opened and the real condition presented, the necessity for prompt, immediate action was upon us.

Most of us will remember that it was but a few years ago when a very able paper was presented at one of our surgical associations in which, regarding the treatment of these cases, it was advocated that the better way was to leave the exposed gangrenous portion of the gut to slough away and a fecal fistula to form, which was opened later if necessary. One cannot help feeling grateful for any method that will facilitate and do quickly the work required and save precious time, as was done in this case.

CASE VII. Mrs. B., aged sixty-seven years; generous, active, cheerful woman, having large interests to look after; much nerve strain at times, and suffering greatly from nervous prostration, being under the care of Dr. Weir Mitchell and other specialists. I was called to see her three years ago by her family physician, Dr. Caverly, when she was suffering from attacks of pain and of colic, in which I made the diag-

nosis of biliary calculi. A careful, thorough course of treatment was followed out by the use of large doses of olive oil, then smaller doses, also phosphate of soda and other preparations, with some relief, so that for a year she was very much better. However, during the summer and fall of 1894 she suffered several severe attacks of pain, latter increasing in severity during the spring of 1895, and when I saw her again, October 16, 1895, she had suffered two very severe attacks, was slightly jaundiced in one, the only time that she had had this appearance. The pain was so severe that large doses of morphine were required, and at times the administration of chloroform had been necessary to afford relief. Her kidneys were found to be in very good condition, although her general strength was not such as would encourage anyone to do a very severe surgical operation; however, the patient was suffering so much that it was decided, if the pain returned, she was to have the benefit of an operation.

The pain continued so severe that on Monday, October 28th, patient having taken ether, I made the usual incision for exploration of the gall-bladder, found it containing about two ounces of bile, and through the walls and down into the cystic duct there could be felt a number of small calculi. There were some adhesions, but not serious. Desirous of making the operation as short as possible, the patient's condition being such that we were not warranted in doing a long one if it could be avoided, I made use of the long drainage-tube button to the fundus of the bladder, and closed the wound after a careful examination for any possible cancerous mass, which was not found, then placed the patient in bed. She vomited some after the operation, but had no unpleasant complications, aside from the fact that her pulse remained in the neighborhood of 90 to 96, and not very strong. Stomach presented a constant condition of nausea, and was not able to take food readily. Kumyss and other preparations were tried, but she was mostly nourished by rectal enemata. Not very large doses of morphine required to afford relief, in fact, it was given up for a couple of nights. Patient's bowels moved thoroughly

well on the third day, and each day after that. Temperature, first night morphine was discontinued, reached 101°, after that it was absolutely normal; wound healed without any disturbance whatever, and button came away on November 6th, eleventh day, when I visited her for the first time after the operation. I also removed a small calculus at this time, but refrained from using the small forceps or scoop until the parts had had a chance to form more firm adhesions. Secretions of bile had been fairly free, the dressings at times quite decidedly saturated. Aside from the nausea and condition of the pulse, the patient was in every respect doing well. I believe that this was the best method of treating this case. The clinical history was in the direction of the gall-stones being confined entirely to the gall-bladder, and, though the stools had been watched with great care, there was no evidence of her ever having passed any through the common duct. Had I attempted a more prolonged operation I am sure that the patient's chances for immediate recovery would have been seriously jeopardized, and that the use of the button in this instance was a saving of time, leaving the patient in good condition for the removal of the gall-stones later.

On November 7th her physician removed five of the very irregularly-shaped calculi, which I here present; but at this time she began to show more marked symptoms of cerebral anæmia, with delirium, which continued, patient finally passing into a comatose state, and died Friday, November 8th, at 10.30 P.M.; temperature just before her death going up to 104° and 105.5°. At no time since the operation had her stomach willingly accepted nourishment, but during that time she vomited but twice.

Autopsy by Dr. Caverly, twenty-four hours after death. Stomach in fair condition, possibly somewhat dilated; liver normal in size but quite fatty. Kidneys also presented a condition of fatty degeneration; but no evidence from gross appearance of nephritis. The doctor states: "The heart was the most decidedly fatty of any I have ever seen. There was no color or appearance of muscle. Heart weighed twelve ounces. Intestines and omentum were loaded with fat; walls

of the abdominal cavity were almost entirely fat, the muscular layers were very thin. There did not seem to be any other pathological condition, so far as the organs of the chest and abdomen were concerned. Brain not examined. The only remnant of gall-stones found was a small one about as large as a grape-seed. Gall ducts were patent and unobstructed. Adhesions left by the button were very nicely observed. From all appearances we concluded her death was probably due to a fatty heart."

This case is one that puts the surgeon in a most marked position of anxiety: a not very strong patient; a patient evidently suffering from marked cholæmia; one who had suffered most severe and agonizing pain, and had not been able to take her usual exercise, carriage drives, etc., in more than six months. I do not believe that any method of treatment could have been accomplished more rapidly, and yet it was a plain case in which her strength was not equal to the demands made upon it.

At the meeting of the New York State Medical Society, in February, 1894, I gave indorsement to the use of the Murphy button, believing that it was a mechanical contrivance of value, that it would supplant all other devices of its kind for the present, and be a great saving of time to the surgeon in certain operations about the abdomen. Possibly something still better will be suggested in the near future, yet, for the present, this is certainly worthy our acceptance and use.

Although the cases I have reported are not many, yet they cover the field in which the device may be made use of so readily and easily, and the result so satisfactory, that I have considered them worthy your attention as having a bearing upon statistics. I believe I have given a just criticism of the accumulation of facts so that we can reach and determine definitely as to the value and usefulness of this contrivance.

It will not answer for every lesion about the intestinal tract, but it surely has its sphere of usefulness, being clean, easily handled, and saves the patient from a much longer operation, when time alone is the great desideratum, which cannot be secured by some of the other methods.

INTESTINAL RESECTION AND ANASTOMOSIS.

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Intestinal surgery has been so thoroughly investigated by the advanced profession, that I shall present the thoughts intended for your consideration more as a discussion than as a *résumé* of the subject.

There has always been a division of judgment upon the question of immediate suture in acute obstruction or injury, requiring resection of the intestine, which even the improvement in technique and means of aid in operative work have not adjusted.

The literature of the present year contains several reiterations of the old advice to make an artificial anus, reserving a secondary operation for the fistula. There can be no good reasons for such miscalled conservatism, in the majority of cases, if competent surgical skill is at hand. Excepting those cases where the patient is already in hopeless collapse, resection with immediate repair is the ideal method; and is to be undertaken if proper surroundings exist. The operation is but little prolonged, and the danger thus added is as nothing compared to that of a second operation to close a fistula, which, if left unclosed, constitutes an infirmity little to be preferred to death. There is abundant testimony that the above is sound surgical teaching, and to establish such a procedure as the only justifiable one, except in extreme cases, are only needed perfection of technique and operative skill. There is no reason to believe suspended peristalsis from paresis, due to long obstruction, overdistention, and fecal absorption, will be any

more likely resumed after the formation of a fistula than of an anastomosis. Given a condition of gangrene, after hernia, intussusception, volvulus, or what not, or the presence of multiple wounds from shot or knife in the gut, too close together to permit of suture, or the existence of an inoperable tumor, acute or chronic, resection with immediate repair is the operation.

Whether it is ever worth while to make anastomosis around inoperable malignant tumors of the bowel is an undisputed question only when complete acute obstruction supervenes, while the general constitutional powers are still good. These lines I am convinced are the ones on which surgery is advancing to-day, and they need no further elaboration. The method of suture is the interesting question. Direct suture, either by the circular method or by anastomosis is an operation requiring both experience and skill of an unusual degree for a hope of success. Even in experimental surgery the step requires from thirty to sixty minutes in competent hands; and is attended with some 50 per cent. mortality; but in pathological conditions, with differences in the calibre of the bowel often added to other complications necessarily attending any condition requiring this operation, circular suture is an unjustifiable step, save in the hands of a master. Lateral anastomosis by direct suture offers but little better prospect. Practically the rank and file of surgeons either make an artificial anus or use some of the aids. I dismiss direct suture with these words, because we are discussing practical surgery as it is done to-day, and direct suture has no more place in it than aërial travel has in general transportation.

The mechanical aids are open to several objections which have prevented their general use, without exception, save in the case of the Murphy button. In the first place, they make a cumbrous material at the point of anastomosis; in all instances a foreign body of greater or less size must be introduced; without exception the opening is smaller than safety demands; and the security of the approximation is always questionable. The oldest and most widely known of the

mechanical devices are the bone plates of Senn. These plates, attractive both in theory and appearance, are bulky in practice, and the opening is limited to not more than an inch and a half, rarely so much. The raw-hide plates which were suggested by Robinson are more manageable, but are most too pliable for security; the potato plates of Dawbarn offer no advantage over the others, save the convenience of manufacture. All of them occasion a very considerable bulk to be introduced into the cavity, and to remain as a foreign body in the intestine. This opening cannot be increased in size without not only correspondingly increasing the bulk of the foreign body, but in direct proportion diminishing the security of approximation.

The button you are all familiar with, and doubtless many of you have employed it. What it is intended to do it does well; but too often it does what is not intended, and disaster and death result. There is abundant evidence that it becomes a foreign body; that it occasions spreading necrosis, which involves the peritoneal coat; that recontraction takes place after lateral anastomosis; that fatal results frequently are directly attributable to its use, besides other less important objections. All these criticisms have been published, and many of the members of this Society are doubtless familiar with the record. But a few months since, Dr. Murphy presented the subject to the British Medical Association in person, where it met with an unfavorable criticism. I believe the button to be so useful, and to have accomplished so much good in overcoming resort to enterostomy, besides saving many lives by preventing bungling direct suture, that I unhesitatingly say I prefer it as a practical resort before any other method except the one I shall now recommend.

The lateral anastomosis is now beyond all question the most acceptable method of resection of the continuity of the bowel, if we exclude the Murphy button. It is best to accomplish by direct suture; and direct suture, as I have before insisted, is of difficult execution except in very skilled hands. In order to facilitate this suture I have presented several times

before a device for clamping opposing surfaces of the bowel, cutting of fenestra between them, and retaining them so opposed until the suture can be completed. I present here the improved instrument. For its perfection I am greatly indebted to Messrs. W. H. Armstrong & Co., of Indianapolis, for valuable suggestions.

This instrument consists of a clamp, with five-inch blades, three-eighths of an inch in width, bearing between them a concealed knife which can be withdrawn four inches. The blades are covered with rubber tubing to protect the bowel from injury by the pressure. A clasp at the end of the handles holds the blades compressed together as in the ordinary artery clamp.

The clamp is intended to so simplify and facilitate the operation by direct suture that it can be successfully made by a surgeon of ordinary skill in from fifteen to twenty minutes without risk.

When a resection is to be made, the mesentery is first tied off with silk, in two-inch loops, at the margin of the bowel, as far as it is intended to remove it. If less than four inches of the gut is to be excised, a V-shaped portion of the mesentery should be taken out to facilitate manipulation of the clamp; otherwise the mesentery is left intact. An assistant strips up the contents of the bowel with the fingers and holds the flow back six inches out from the point of section. The surgeon cuts through the gut at the point of resection with sharp scissors. Any hemorrhage from the divided mesentery is checked. The blades of the clamp, which are covered with rubber tubing to protect the gut from undue pressure, are now introduced—so as to appose when tightened the surfaces of the bowel opposite the mesentery—until the free ends of the bowel are received into the curve on the shank of the clamp. The clamp is tightened and two interrupted stitches are inserted on each side near the middle of the blade, to prevent possible eversion of the cut edges after section; the knife is now made to traverse its route two or three times to insure complete section of the gut-walls. The pressure made by the

clamp controls all hemorrhage. While a second assistant holds the clamp the surgeon, beginning about one inch from the free end, runs a Glover suture rapidly along the upper surface, including only the peritoneal and muscular coats, and thus opposing the one-fourth-inch peritoneal surface caught by the blades. When the mesentery is reached, depression of the handles will cause the other surface to present at the resected point, and suture of the other side is completed in the same manner. The blades are now unlocked and withdrawn, and the finger of the assistant explores to insure the patency of the fenestra. If for any reason further division is necessary, it is quickly made by introducing a pair of scissors through the open gut-end. Such additional cutting will perhaps never be necessary if the knife is passed two or three times along its course. Invagination of the ends is now done in the usual manner, the cut surface of the mesentery sutured as may be necessary, and the anastomosis returned to the abdominal cavity. The operation can easily be accomplished in from twenty to thirty minutes under ordinary circumstances. Practice and skill can do it in less time, and only considerable difficulty can prolong it an hour.

I have experimentally used this clamp sixteen times with fourteen consecutive recoveries. I have had but one opportunity to use it in practice. On May 25th, of this year, I operated on Mrs. E., aged fifty-three years, who had a fecal fistula at the right femoral opening, the result of a strangulated hernia operated on eight months ago. She was in very depressed health, much emaciated, with swollen feet and legs, and very feeble circulation.

An incision was made just above Poupart's ligament, near the fistulous opening. The fingers easily liberated in a few moments the intestine, which presented an opening occupying half its lateral surface, about as large as a quarter of a dollar. I show you here the specimen. The mesentery was greatly thickened; the distal segment of the bowel was reduced in size, the proximal dilated at the site of the fistula. About four inches of the intestine was resected; the blades of the

clamp were applied opposite the mesenteric borders of each segment, and the anastomosis made as above described. After suturing, Drs. Cartledge and McMurtry examined the communication between the opposing surfaces and found it ample; the cut ends were then invaginated, and the anastomosis returned; the abdominal wall closed with the silkworm-gut sutures; the site of the fistula curetted and filled with iodoform gauze and the patient put back to bed in forty-two minutes. Notwithstanding her feeble condition she reacted without difficulty. There was very little shock. The pulse never went above 100, the bowels moved on the second day in response to an enema, and she steadily progressed in convalescence. At the present time she is well as ever except a ventral hernia at the site of the fistula.

The advantages of this method over the other aids, except the button, are manifest. Not only does it do away with the foreign body, but cuts an opening three or four inches long at the fenestra. It is fully as easily accomplished, and takes if anything less time. It is no more difficult to use than is the button, but the operation cannot, of course, be so quickly completed, as the invagination of the ends is not necessary after the end-to-end approximation by the button. The clamp merely makes the direct suture easy to any ordinarily skilled hand, and does away with the foreign body afterward. The clamp is manufactured by William H. Armstrong & Co., of Indianapolis, Ind.

DISCUSSION ON THE PAPERS OF Drs. VANDER VEER AND GRANT.

Dr. G. A. L. Reed, of Cincinnati.—The papers to which we have listened are certainly two practical contributions. The paper by Dr. Vander Veer covers such a wide range of practice that it would be impossible to discuss it in detail; I shall, therefore, confine myself to a single point. I wish, in the first place, to emphasize the facts made apparent in his paper by calling attention, first, to the case of resection of the large intestine (the sigmoid),

which was fatal. His other cases of anastomosis of the small intestine were recoveries of the most satisfactory sort. In a case of resection of the sigmoid, which I had occasion to do under what would seem to be ordinarily favorable circumstances, I made an anastomosis by means of the button. It was a difficult thing to do. The lumen of the intestine is large, the walls are thick, and it is hard to get them to pucker around the connecting necks of the button. Under similar circumstances I should resort to the unsatisfactory procedure of an artificial anus, doing an inguinal colostomy, for the reason that approximation in this locality, even by the ingenious device presented by Dr. Grant, is a matter of extreme difficulty. End-to-end approximation at this point is out of the question without some kind of mechanical device. Suturing is a matter of extreme difficulty. Experience will establish the fact that the button ought not to be used in approximation of the large intestine, for the reason that it is next to impossible to secure the liquid contents of the small intestines so that they will pass through the small opening in the bottom. You will always have it choked up with the fecal current at this point, and the obstructive force of the fecal accumulation above tearing away the anastomosis and defeating the objects of the operation. In the small intestine it is different. There we have the liquid contents that pass through the small opening in the button, and the approximation is satisfactorily accomplished.

I wish to commend the splendid instrument which has been presented by Dr. Grant. It is certainly a very ingenious one. I have not used lateral anastomosis, having always preferred the end-to-end procedure, but, with the facility with which it can be done by the instrument presented by Dr. Grant, I shall be encouraged to try it. I wish, when Dr. Grant closes, he would give us his views as to the possibilty of difficulty arising in the two *culs-de-sac* which must remain in the event of lateral approximation, in which there has been invagination and closure of the ends of the intestine.

Cholecystenterostomy by the Murphy button is one of the easiest, neatest, and altogether most satisfactory operations now known to surgery, and excepting in cases where there are vital conditions, such as prevented Dr. Vander Veer from making an anastomosis, I believe it ought always to be done, and I would have been prompted to have done it in that case. It is true, whenever we

make an opening in the intestine we have an increase of shock, which would be a serious matter in the last case related by Dr. Vander Veer, and that is the only thing that would prompt me to resort to the old expedient.

Dr. J. M. Mathews, of Louisville.—I was very much edified, as I am sure the whole Association is, with the two practical papers that we have heard, and I only wish to speak of one point in Dr. Vander Veer's paper, namely, the operation that was done for carcinoma of the sigmoid flexure. I am on record as speaking to the effect that the operation is unjustifiable, and there can be no stronger argument than when we see surgery done by the skilled surgeon who reports these cases to-day. If this case fails to get well, what would other cases in incompetent hands do? I do think, gentlemen, in all major operations that are being done over the land to-day, that there should be very great preparation on the part of the men attempting to do them before they report their successes or non-successes.

In regard to detecting a tumor in the flexure, it will have been noticed Dr. Vander Veer stated that it was apparently a growth or tumor (malignant) in the flexure. I have taken occasion more than once to mention the difficulty that attends diagnosticating tumors of any kind in the sigmoid flexure. Time and again I have been mistaken, and I believe others have likewise, in supposing we had a malignant tumor of the flexure when we had not; and supposing, on the other hand, we did not have it when we did. If you will permit me, I will recite a case. A few years ago there was a gentleman brought to me from an adjoining State, and, from evidence outside of palpation, I believed that the man had malignant trouble in the sigmoid flexure. The following week he was taken to Chicago to a very eminent surgeon, who gave as his positive opinion that there was no tumor of any kind in the flexure, and advised the patient to go home and go to work. In less than six weeks thereafter he was a dead man. An autopsy was made and carcinoma of the sigmoid flexure was found, which I have now in my possession. Therefore, it is a difficult thing to say when a man has malignant trouble in the sigmoid flexure. In discussing this point several years ago in the chamber of a patient, who had been treated by my friends, Drs. Grant and Roberts, of Louisville, I suggested a procedure

for determining the question whether there was a malignant or any other growth in the flexure, which was to chloroform the patient, dilate forcibly the sphincter muscle, and introduce the hand. If one surgeon happens to have a smaller hand than the other, that would be the best hand to introduce into the rectum, and feeling the flexure see by touch, as invariably you can, whether there is a tumor or not.

My reasons for opposing operative interference are just about in substance what Dr. Reed has said. It is a very difficult operation so far as the anastomosis is concerned. Notice the results, even if it was successfully done. Certainly, a cancer in the sigmoid flexure, at the time that an operation of this magnitude should be done, is attended by infection of the general constitution—systemic. There is an involvement of other organs and tissues of the whole body. Therefore, can a man live any longer after you remove the tumor than he would if you did not? Granting there is total obstruction, would it not be better to perform colotomy and let him live out his allotted days in a more pleasant way than he would if you did not perform the operation? But in lieu of this, it occurs to me that the plan suggested by Dr. Bacon, of Chicago, of anastomosing the colon to the rectum around the growth, leaving the growth there, would be a more favorable operation than extirpation of the carcinoma.

I had the pleasure of seeing my friend, Dr. Cartledge, do this operation a few months ago. He did it quickly, without shock, and the patient made a perfect recovery.

Dr. A. M. Cartledge, of Louisville.—I simply rise to speak of one point in the very excellent paper of Dr. Vander Veer, and also to speak of the anastomosis appliance of Dr. Grant. The paper of Dr. Vander Veer deals with so many phases of intestinal surgery that time will not permit to touch upon all of the interesting points. When the doctor mentioned the use of the button in making an ordinary cholecystostomy, the question occurred to me, whether much, if any, time was saved over the usual method of suturing. It seems to me that the button here does not save much time, and it would not be as useful as the more ordinary method of suturing. I think this was well illustrated in the case in which he had a passage of stones after doing this operation, where time was necessary on account of the extreme condition of his patient. I have, in those cases in which

there were numerous small stones impacted and extending into the cystic and common ducts, made a large incision in the gall-bladder and sutured it where we could not get the stones out, and they would pass for days externally. It seems to me the orifice in the button is too small to permit this. In suturing the gall-bladder to the peritoneum I find that it shortens the process very much. I used to go around the orifice in the gall-bladder and suture the peritoneum, taking in enough of the muscle to give it stability. I now carry my upper and lower silkworm-gut suture in such a way that it takes in the upper and lower angle of the gall-bladder. One suture at the lower, and then two interrupted sutures at the side, will stitch the gall-bladder sufficiently. It does not take any longer to do this suturing than to introduce a Murphy button.

One word in regard to the mechanical appliance shown by Dr. Grant. In his description of this contrivance, I must say that I was disappointed. It seems to me to be a complicated thing when you take notice of it at first, and yet I have had the pleasure of seeing Dr. Grant use it in the case he reports, and the device seems a most excellent one. Certainly, he was but a few minutes in doing the suturing, and his anastomotic orifice was ample in this particular case, and the neatness with which it was done seems to highly commend its use, if it gets rid of the foreign body.

Dr. W. E. B. Davis, of Birmingham, Ala.—The papers to which we have listened are certainly of great interest, inasmuch as they deal with operations that often greatly tax us. I believe the Murphy button can be used with advantage in intestinal work where it is necessary to do an operation quickly; but otherwise, I think the method of stitching, similar to that practised by Abbe, is better. It is more certain and not liable to be followed by the accidents which are apt to result from the use of a mechanical device which is not absorbable. Where it is necessary to do cholecystenterostomy, I believe it should be used; but Dr. Gaston, who has done more than any other man in this country to make this operation popular and to demonstrate its applicability, admits that it is a procedure that has a comparatively limited field. I do not think Dr. Murphy is right in doing a cholecystenterostomy for stones in the gall-bladder. Furthermore, in order to use the button successfully, it is necessary to make the opening in the gall-bladder small, and you leave behind stones

that may not pass and that may require another operation. Therefore, cholecystotomy should be done for calculi in the gall-bladder. In those cases where the stones are impacted in the common duct, it is not wise to do a cholecystenterostomy, if the stones can be removed, because you leave behind a condition which will require a future operation, and it is a difficult procedure to go down and remove a stone from the duct after the adhesions have been formed between the gall-bladder and duodenum or the upper part of the jejunum. The operation of cholecystenterostomy by the use of the button should be resorted to only in those cases where it is impossible to remove the obstruction in the common duct. The operation by the old method, as pointed out by Dr. Cartledge, is decidedly better in the other class of operations. Where the gall-bladder cannot be brought up to the abdominal wall, and when the duct has been incised, it is better to introduce a drainage-tube and pack around it with gauze. My experiments on animals demonstrate that we will have but few complications following such a procedure.

Dr. Vander Veer (closing the discussion on his part).—I feel very grateful to the members for any points that the discussion of these papers has brought out. We like to listen to commendation, condemnation, and criticism of any operation. It is a part of the work of such an Association as this.

Dr. Reed has presented points with which I have to agree, and I feel that he has presented them so clearly and nicely that they will be of service as we study them. I must say that about the time this case presented I had for a period of a year or more done some three colotomies, believing the operation for the removal of cancer of the sigmoid flexure was, as Dr. Mathews had stated, really an unjustifiable procedure. I tried other methods, and eventually, in some cases, had to resort to colotomy. The difficulty of diagnosis has been presented by Dr. Mathews in a very lucid manner. In this particular case, to which reference was made in the paper, I said possibly we could not have more than a stricture which implicates a small portion of the calibre of the intestine, and, after the presentation of this mechanical contrivance, I said to my assistant we will try a large button. But I am satisfied with Dr. Reed, that end-to-end anastomosis of the large intestine with a large button is not likely to be a satisfactory operation. The calibre of the button will close from the hard-

ened feces. The conditions are not alike. Fluid in the small intestine will pass through quickly and easily, while in the large intestine it is a complication we cannot get rid of. I had an opportunity of examining Dr. Grant's instrument, through the kindness of Dr. Macdonald, my associate, who secured one a few days ago, and I must frankly say that I do not think Dr. Grant did himself justice in the presentation of it here. It is a difficult thing to present and describe intelligently, unless a man has a chance to actually demonstrate it. However, I believe that in this instrument we have an appliance that will be of value to us. The whole trend of the discussion is in the direction of indicating this to my mind, just as I endeavored to bring out in the presentation of my cases. The Murphy button is not the ideal device for this work, and we shall still have further improvement in this direction. We need something that will meet the requirements of the surgeon in doing this work. While I believe the button may be used quickly in end-to-end anastomosis of the small intestine, yet we know of cases that have occurred in anastomosis of the small intestine to the stomach where the button dropped back into the stomach and has done mischief. It is said that this can be overcome by making the anastomosis in the posterior wall of the stomach. We know of other instances where the button has acted as a foreign substance and produced localized abscess and has been removed from the abdominal walls, having failed to pass through the intestinal tract and finding its way out in that direction. We have the criticism of both English and German surgeons in regard to it. There is a field for it, and that field will be presented in an intelligent way by such discussions as we have here to-day.

In regard to introducing the hand for the purpose of diagnosticating tumors about the sigmoid flexure, I was very much impressed with Simon's paper when he spoke of having passed his hand up into the rectum and marked out, as he said, so and so.

I tried it some time afterward, and was successful in locating a growth about the upper portion of the colon. I tried it in another case, and was sadly disappointed in using it, the patient passed into a condition of collapse, and while my hand is not as large as that of some surgeons, yet in that case I produced rupture of the rectum. There is a man in our city who does obstetrical work, who has a beautiful hand, and I got him to pass his

hand in a particular case, but he could not tell anything about what he found outside of his own work. Therefore, I do not know how much importance we can attach to this method of exploration.

As regards Dr. Cartledge's view, he brings out a point that I wanted brought out in the discussion of my paper. I believe we can do the operation indicated by him as quickly as by using the Murphy button. It is only within a comparatively short time—and we are indebted to Dr. Davis for his excellent experiments—that we have been converted to the belief that a little bile in the peritoneal cavity does no serious harm. I remember some five years ago being called to see a clergyman in a neighboring city, who was suffering from marked jaundice and full gall-bladder. He had been sick for a long time, and I then did what I have not done since—aspirated the gall-bladder and withdrew some twelve ounces of bile, and I believe some of it escaped into the peritoneal cavity. He died within three days of septic peritonitis. A post-mortem examination revealed carcinoma which involved the duodenum and the end of the common duct in such a way that no operation could have been done. I believe in that case the bile which escaped into the peritoneal cavity did harm. We remember the elaborate paper presented by Keen, of Philadelphia, a few years ago, in which he spoke of doing the operation of cholecystotomy, and how much care he exercised in not permitting, if possible, a drop of bile to enter the peritoneal cavity. In those cases where the gall-bladder is small and far from the abdominal walls, you can remove the gall-stones and put in a drainage-tube, pack with gauze, as Dr. Davis speaks of, with very little danger of bile causing septic peritonitis.

Just a few words more, and I have done. In cases of inflammatory stenosis in patients of advanced life, without the presence of cancer, there is no operation which gives one greater pleasure to perform than cholecystenterostomy by means of the Murphy button. It is done so quickly. I know of no operation that is done so quickly as anastomosing the gall-bladder to the small intestine by this method.

Dr. Grant (closing the discussion).—It has been remarked by Dr. Vander Veer that I did not elaborate the points of this clamp; that I also did not enumerate the objections to the Murphy button. As far as the Murphy button is concerned, I feel

that we owe Dr. Murphy a debt of gratitude for his valuable suggestions. I believe that by his device surgeons have accomplished much, and the clamp I presented to you is still untried. I have not the courage to say any more against the button, or any more in favor of the clamp, than I have said to you. In a case coming into the hands of a surgeon without experience in this line of work, when some operation is necessary to restore the continuity of the bowel, I say to you frankly that he must have had a great deal of experience in operations upon the animal before he is able to successfully operate upon the intestinal tract without some of the devices such as have been suggested. Many devices have been tried and found objectionable, the one presenting the least objection is the Murphy button. Its objections you are all familiar with as surgeons, who have had more or less experience in the abdominal cavity, and it would almost be presumptuous in me to go over the literature for you in the short time at our disposal. As Dr. Davis has said to you, the preferable operation is by the direct suture, after a modification of the method suggested by Dr. Abbe, of New York. This is lateral anastomosis. It establishes the continuity of the bowel with an opening which cannot contract enough to obliterate it, and which has no foreign body introduced into it. As second to direct suture, uniting the two ends of the bowel, the method suggested by Dr. Abbe is an ideal one. As I have said, direct suture, approximating the end of the bowel, is out of question in the majority of cases of pathological conditions which require resection, because one end of the bowel is larger than the other. The proximal portion of the intestine in intestinal obstruction is greatly dilated, as well as the distal portion contracted, especially in those cases in which fistula exists, the distal side of the gut is diminished in size very considerably. Extensive resection is necessary in order to get the bowel of equal size, and then it cannot be done in many cases. Your resources are, therefore, narrowed down to one of two things, either the use of the Murphy button or lateral anastomosis. If you undertake direct suture you will certainly lose your patient unless you are a surgeon of unusual skill, and even then the chances are against you in resorting to direct suture without some mechanical aid. The performance of direct suture, without one of these mechanical aids, is a hopeless task for anyone without some special skill. The Murphy button has its objections.

Colotomy and enterotomy are exceedingly objectionable, and should never be resorted to when experience and competency are at hand.

With the clamp that I have presented to you any surgeon of ordinary skill, having the two surfaces of the bowel directly opposite, can suture them without soiling the peritoneum or letting them slip away. (Here Dr. Grant again demonstrated the *modus operandi* of his clamp.)

The object of the clamp is simply to hold the surfaces of the bowel closely apposed until they can be sutured, and while they are held in this manner by an assistant any surgeon of ordinary skill can readily complete the suture in the course of six or eight minutes. Invagination is to be done as after any operation of resection, and involves no difficulty, requires no very great skill, and is soon accomplished.

SURGICAL INTERFERENCE IN RECTAL DISORDERS.

By J. McFadden Gaston, M.D.,
Atlanta, Ga.

The rectum is an ovoidal canal extending from the sigmoid flexure of the colon to the anus. It is narrowest above and becomes more expanded below, presenting a pouch-like shape, capable of great expansion, and serving as a reservoir for the débris, which results from the completion of the process of alimentation. Its walls are thicker than those of the colon and capable of great contraction in expelling the excrement. The serous coat invests its upper part and forms the meso-rectum and extends on the sides sparingly, but more in front. The rectal fascia, of fibro-connective tissue, with its blood-vessels, surrounds the lower portion of the rectum.

"There are two sets of muscular fibres encircling the lower part of the rectum, known as the outer and inner sphincters, by which it is automatically closed except when dilated voluntarily for the release of flatus or the discharge of fecal matter. There is also another distribution of circular contractile muscular fibres at the upper limit of the rectum, which constitutes the division between it and the sigmoid flexure of the colon. This may be appropriately designated as the recto-colic sphincter, and forms an effective barrier ordinarily to the descent of the excrement into the rectum. This annular muscle has not received from anatomists or physiologists the consideration which its rôle in the intestinal functions warrants. It is a veritable constriction from muscular contraction, by which the colon is normally closed against the descent of the

fecal mass into the rectum."[1] Before the excrementitious matter reaches this constrictor it is deprived of its nutriment, and, after passing this annular division, it is deposited in the reservoir below until a convenient opportunity is afforded for its expulsion through the anal outlet.

The multiform departures of the tissues of the rectum from their normal condition induce various pathological modifications and functional derangements. There are not only changes of structure from ordinary inflammatory processes, but also material alterations in the constituent elements of the organism from a deterioration of vitality induced by syphilitic and tuberculous degeneration, as well as a profound depravity of structure from the development of carcinomatous neoplasms.

Simple fissure of the anus, involving the mucous and submucous tissues of the rectum, may prove a source of reflex disturbance to the nervous system, so as to require operative measures for relief. Hemorrhoidal developments, whether confined within or protruding from the anal opening, may be complicated with sanguineous exudation, demanding a surgical procedure. Strictures of the rectum from fibrinous depositions in its walls call for division or excision of the structures involved.

Fistula in ano, resulting from perirectal abscess, may be complete or incomplete, and admits of no radical cure without operation, even when associated with tubercular disease. Papillomatous nodules, located in the walls of the rectum, whether limited to a small area or extending over a considerable portion of the mucous membrane, should be removed, with a view to obviate their degeneration into a malignant form of disease. When carcinomatous induration of the rectal tissues is detected early, there is encouragement to undertake an operation, but after the breaking down of the neoplasm with infiltration of surrounding structures, no benefit is derived from excision of the parts involved.

It is a mooted point in regard to the practicability of erad-

[1] Author's paper on "Treatment of Dual Fistula," read before the American Medical Association, June 5–8, 1894.

icating rectal troubles of syphilitic origin by medication, and with the present light on the subject it seems justifiable to resort to such a surgical measure as the condition indicates, while constitutional treatment is being carried out in the case.

There are instances of supposed development of specific disease in the form of stricture of the rectum, after the lapse of many years subsequent to any syphilitic contamination, and some authors claim their ability to diagnosticate specific stricture even without a previous history of primary syphilis. But the medical profession should be very guarded in coming to such a conclusion upon a general consideration of the nature of the case; and without sufficient evidence of the initial lesion in a patient of respectable position in society no theoretic bias should lead to a diagnosis of syphilis.

There is a rectal relaxation consisting in prolapse of the intestinal wall, which in young subjects is often relieved without resorting to any operative measure. But again this occurs in adults or even in old subjects, when nothing short of actual surgical interference can be relied upon for relief, and even with the most vigorous measures, prolapse of the rectum proves in some cases intractable.

There is not infrequently an ulceration extending around and within the lower part of the rectum involving the glandular structure near the anal outlet, which is only amenable to excision. This has been mistaken for the breaking down of hemorrhoids, but is quite distinct in its pathological condition, and should not be confounded with other ulcerative degeneration of the rectal tissues.

While there are some rectal disorders besides those enumerated which call for the surgeon's attention, it is not requisite to enter into their consideration in this general summary of the conditions demanding operative interference.

It will be perceived that the rectum affords material for surgical work of the most important character, and it should not be relegated to those professing to deal with so-called orificial surgery.

The readers of the *Annual of the Universal Medical Sci-*

ences, for 1895, will note that Dr. C. B. Kelsey limits his contribution to syphilitic and cancerous disease of the rectum. I have noticed, however, that another specialist in this department, Dr. Joseph M. Matthews, is arousing the dormant energies of the profession to the various phases of rectal troubles through his publications, and especially in his *Quarterly Journal.* While the operation of Kraske and others for the extirpation of the rectum does not receive his sanction, yet there are desperate cases in which some form of removal is warranted, rather than leave the patient to die without any operation.

This matter of rectal surgery is not viewed from the standpoint of the specialist, as my attention has not been directed to it except as a part of my work in the rather extended field of a general surgeon. But I am fully impressed with the conviction that many cases find their way into the hands of quacks which ought to be treated by members of the regular medical profession, and preferably by those who have made a special study of rectal diseases and are prepared to treat properly all the surgical disorders of the rectum. In the paper by Dr. Arpad G. Gerster, before the American Surgical Association, upon the "Surgery of the Rectum," in 1893, there is a full *résumé* of cases treated during four years in the Mount Sinai Hospital of New York. There were 557 patients suffering from rectal ailments admitted within this period; of these 280 were classified as hemorrhoids; 167 were cases of fistula, including the more acute forms of ischio-rectal trouble; 17 cases of carcinoma; 11 cases of prolapse; 6 cases of cicatricial stricture; 6 cases of chronic ulcers; 7 cases of polypus; 1 case of multiple adenoma; 2 cases of congenital atresia of the anus and 1 of the rectum, with 4 cases of anal fissure.

It will be observed that hemorrhoids and fistulæ make up four-fifths of the entire number of cases involving the rectum, and it seems remarkable that only four cases of fissure should have appeared, making an average of one to each year, when this is generally regarded as of frequent occurrence. Dr. Gerster performed extirpation of the rectum in five cases, four

times for carcinoma, and once for strictures caused by ulcerative proctitis. Two of these died of acute anæmia in consequence of the operation; one suffering from carcinoma, the other from ulcerative proctitis. In both the operation of Kraske was performed. Two other cases, in which about six inches of the gut were removed by Kraske's operation, were successful. "In the case of a woman, fifty years old, whose very wide pelvic aperture permitted easy access without extirpation of the sacrum, the coccyx alone being excised, four and a half inches of the rectum were removed according to the old-fashioned perineal method. She made an easy and rapid recovery." By Gerster a preference is given to the radical operation over colotomy, where the condition of the patient permits it, but the patients should be carefully selected, in view of the general powers of resistance in the patient rather than in the extent of the local disease which is encountered. It is urged that only such cases should be selected as have a good circulation and whose heart and blood supply are fairly preserved. Preliminary colotomy is enjoined where much fecal distress and more or less fever exists; while preparatory feeding and general regimen are held to be essential for success.

In the discussion of this paper, Dr. Lewis S. Pilcher, of Brooklyn, presents some interesting data from the service of Dr. Fowler and himself in the Methodist Episcopal Hospital, of Brooklyn, N. Y., relative to carcinoma of the rectum. Of ten cases under observation in the last five years, three presented such an extent of local disease and general cachexia that operative interference by extirpation was inadvisable. In a fourth case in which the disease extended four inches above the anus, operation was refused. In the other six cases operations were done with two deaths as the immediate result, and without a radical cure in either of the other four cases, though life was prolonged for some time. One of these patients was twenty-nine years old and another only twenty-three years.

Dr. H. H. Mudd, of St. Louis, states that he has removed the upper portion of the rectum and the lower portion of the colon through the abdominal cavity with success.

Dr. L. McLane Tiffany, of Baltimore, says that by proctotomy he has utterly failed to give relief in rectal troubles, and he believes that colotomy gives the best results.

Dr. T. F. Prewitt, of St. Louis, claims that a great many cases of cancer of the rectum are not suitable for excision and that inguinal colotomy is the proper course in such cases. He thinks it is better to make a complete section of the colon and bring both ends of the bowel out. In this way you avoid the passage of any matter through the lower part and do not need any spur.

In closing the discussion Dr. Gerster remarked that he had not mentioned closure of the colon after extirpation of the rectum, but he had reclosed the opening into the colon when the cause for which the colotomy was done had been removed. His section being transverse, including almost the entire circumference of the bowel, both apertures protrude through the external wound. He believes that the spur is essential in colotomy.

In an editorial review of operative measures for cancerous affection of the rectum in the *Annals of Surgery*, by Dr. J. P. Warbasse, a full report of those having large experience in the treatment of this class of cases is presented. I would refer those interested in deciding upon the practicability of affording relief in carcinoma of the rectum to this concise and impartial record without entering into minute details of the observations. It may be stated, however, in general terms, that conflicting views are presented as to the stage at which operative measures of relief are admissible, and no definite conclusion can be arrived at in regard to the precise steps which are indicated or as to the mode of proceeding in different cases. An operation adapted only to women is detailed with some confidence in its advantage, which, so far as my observation goes, has not been practised in this country. It consists in dividing the whole perineal body into the rectum and thus secure an ample field of operation, which is subsequently to be reunited by sutures.

The burning and urgent appeal to the surgeon to-day is for a

definite settlement of the issue as to active interference in cases of pronounced cancer of the rectum. Shall we content ourselves with the mere palliative measure of inguinal colotomy and leave the diseased structures untouched, as urged by Dr. Matthews in his paper before the American Medical Association, or shall we endeavor to remove all the tissues involved by extirpation, as recommended by Dr. Gerster in his paper presented to the American Surgical Association? The full statistics of results in the hands of skilled operators ought to be collected and a fair analysis made before a final adjudication of the question can be reached. The materials for such a comparison should be obtained from cancer hospitals in this country and in other countries, as well as from general hospitals receiving and treating this class of patients, and being grouped together a fair inference may be drawn as to the feasibility of active interference in any case of carcinoma of the rectum.

DISCUSSION.

Dr. Joseph M. Mathews, of Louisville.—I desire to say a few words in comment of Dr. Gaston's paper. It is always entertaining to hear a man of vast experience in surgery read a paper like this, and I must say it is a conservative one. Dr. Gaston is a conservative surgeon, and when I say that I mean the best kind of a surgeon. I believe in conservative surgery. There are some things, however, in his excellent paper that I would slightly object to, and I will go hurriedly over the ground. Dr. Gaston calls attention to the existence of a third sphincter muscle. Some authorities have noticed this fact before. Having introduced my finger thousands of times into the rectum, I have found in a great many cases just what Dr. Gaston has said. We do find this supposed third sphincter, and what part it plays exactly I do not know. I am sure that in many cases we do not find it at all. It cannot be defined to the finger.

The doctor incidentally speaks of fissure of the rectum giving rise to reflexes. I am glad that he makes mention of this simply to emphasize one point, that is, to have reflexes from the rectum we must have a pathological condition. The so-called orificial

surgeons have run wild about reflexes from the normal rectum, I am glad to hear the doctor say that there is disease which causes reflex troubles, and we cannot have them without it. The idea of taking out a healthy rectum is preposterous, and yet they are being taken out almost every day. Many good, respectable citizens have lost healthy rectums in my own city.

In regard to stricture of the rectum, what is the cause of the constriction? My observation has been that a benign stricture of the rectum is very seldom met with. There are cases mentioned by the authorities, I must confess, but I have failed to find them. If you do find such stricture, it is simply an annular constriction of the mucous membrane, which is easily dissipated, and does not require excision. Stricture of the rectum, due to other causes, is a formidable thing; in other words, when you put your finger in a rectum and find a stricture there, it is a serious thing, because it betokens what the doctor says, one of three serious diseases—syphilis, tuberculosis, or cancer, and the patient should not be turned aside with the jesting remark that he has a stricture in his rectum. In rectal strictures, I have said that 60 per cent. of such strictures result from syphilis. I have asked my professional friends to investigate this matter as far as they were able to do so, and I have had many answers in the affirmative. Rectal strictures, the result of syphilis, are just as incurable by medication as cancer is, and the disease is just as formidable as cancer, the misfortune being that the patient lives longer than he would if he had cancer. If it can be removed, as Dr. Gaston has said, by excision or resection, all right; do it. Often the stricture involves a portion of the rectum we cannot resect. I regard syphilitic stricture of the rectum as being more frequent than either cancer or tubercle. Regarding excision of the rectum for strictures, I am glad to hear so learned a surgeon give us his ideas regarding it. I have taken occasion to say in previous discussions of this subject that I have questioned whether a rectum that was totally involved with a cancerous growth should be excised. As the doctor says, if we could get statistics, or if we could get at the truth about the matter from all surgeons who have performed this operation, we could form a better idea, but I believe there would result many failures, that the patients would not be cured, and many of them would die as a result of the operation. If the rectum is removed in its entirety, what are the chances?

We know what the chances of removal of the cancerous breast are. We know, as I said in a paper before the American Medical Association, that it is necessary to make the operation as radical as possible. Whenever you see a cancer that has blocked the rectum to the sigmoid flexure, is it not true in every instance, without contradiction, that you have systemic infection? If you have such infection, can you possibly cure the patient? I wish, like Dr. Gaston, we could remove the rectum successfully when it is totally involved with cancer, but I doubt it.

He also speaks of prolapse of the rectum. It is remarkable how few cases of this disease we find in the adult. In children it is common because of the anatomical formation. Prolapse of the gut proper in the adult is seldom seen. When it is seen, as the doctor says, it is a very difficult thing to cure. It requires a radical operation.

Ulceration of the rectum. I want to reiterate just what I would say about this condition. Benign ulceration of the mucous membrane anywhere is infrequent. A benign ulceration in the rectum is very seldom seen. Whenever a well-defined ulceration is found in the rectum, in the vast majority of cases, it is a very serious condition, because it arises from those things which the doctor has spoken of—syphilis, tubercle, or cancer. He speaks of Kraske's operation for the removal of rectal strictures and other conditions, and also refers to some remarks I have made on the subject on previous occasions. I want to say, again, that I have not changed my opinion. I believe Kraske's method of removing the rectum is the best ever given to the profession. There is no question about that. What good do you do? It is a difficult and formidable operation, and, notwithstanding the opinions of some surgeons to the contrary, I believe it to be a bloody one. We must take into consideration the fact that the cancer has probably existed for years before you have seen it. Whoever saw cancer in the rectum in its incipiency? Very few of us. If you can find cancer of the rectum in its incipient stage, and think you can remove it successfully, of course, do it. You find in these cases that the rectum is blocked, and the tissues are infiltrated with cancer material, and I doubt the propriety of Kraske's operation. Gerster's paper is a very valuable one and bears out in certain respects these remarks. In his operations for cancer, two of the patients died as a result of the operation. That is

bad. The others he counts successes. But Dr. Gerster has just read his paper in which he reports these cases. Tell me in three years, six years, if the person is living. If so, that is a success. Wait until we can collect statistics. When you simply remove a breast for cancer you do not say that it is a success. You wait until the allotted time has passed, and then you say whether it is a success or not. Two patients died, the other got well from the operation. Can Dr. Gerster, or anybody else, say that the patient would not have lived just as long without the operation?

Dr. Pilcher makes an admirable point in this respect. When he found the cancer growth extending four inches up the rectum he refused to remove it. If you can get a cancer within reach in an immovable rectum, excise it. Beyond that, I agree with Dr. Pilcher, that it is not an operable case by that method.

As regards colotomy, many articles have been written on the subject, and surgeons still disagree, but I always look upon it as a disgusting operation. I have been criticised for calling it "disgusting." I cannot conceive of anything more disgusting than a patient having to defecate through his side. When we can avoid it, we should do so. I do not know whether the Fellows have had the experience that I have had, but the majority of cases have not been attended by total obstruction, and the pain has not been so severe that the patients could not bear it, and just as long as they can defecate and bear the pain, I do not believe in performing colotomy on them. When total obstruction does exist a man wants to live a little longer. I believe colotomy is justifiable in some cases of cancer of the rectum. An ideal case for colotomy is a syphilitic rectum blocked into the sigmoid flexure, as you have seen many a time, and you could not pass your finger up through the orifice. A colotomy in such a case is justifiable, because there will be total obstruction. The man will live out nearly his allotted time simply because there is no such growth as cancer there to kill him. He can live with syphilis of the rectum, as we know many patients do, for years after colotomy. I believe that is a perfectly justifiable operation.

Dr. H. M. Nash, of Norfolk, Va.—I have seen a number of cases of ulcer of the rectum that were neither syphilitic, tuberculous, nor cancerous, and by dilatation of the sphincters, exposing the parts thoroughly, with topical application, I have seen people entirely cured and rescued from extreme misery. I merely

wish to mention in this connection that I invariably use Sims's wire-rectal speculum, placing the patient in the exaggerated Sims's position, which gives the operator all the space he wants to manipulate in the rectum. I have removed papillomatous growths three or four inches above the anus in the rectum in this manner with perfect ease.

Dr. Gaston (closing the discussion).—I have very little to say other than to thank Dr. Mathews for the very satisfactory review which he gave of the points presented in my paper, and to congratulate him on his attitude of masterly inactivity in a great many of these cases.

ONE HUNDRED AND SIXTY-SIX CASES OF CANCER OF THE PREGNANT UTERUS OCCURRING SINCE 1886.

By George H. Noble, M.D.,
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My attention was turned to this subject by four cases that came under my observation, one of which was the vaginal hysterectomy, post-partum, reported to this Association one year ago; the others, one of which was a vaginal hysterectomy for incipient cancer of the pregnant uterus, were reported to the Atlanta Obstetrical Society some time in the past.

The success in these cases has encouraged me to look more carefully into the treatment, etc., and as a result report 166 cases of cancer of the pregnant uterus which have occurred since the year 1886, the time of the Bar thesis.

I shall confine this report mainly to the statistics of the treatment and results, referring you to Bar, Cohnstein, and others for information concerning the age, the period of recurrence, the period of abortions, etc.

There were twelve partial amputations of the cervix in the first seven months of pregnancy, averaging five and one-third months.

Ninety-one and six-tenths per cent. of the mothers recovered from the operation; 8.3 per cent. died; 66.6 per cent. went to full term, one child dying subsequently; and 41.6 per cent. aborted (one conception of six months living, Case No. 11).

Two of the mothers had subsequent operations for the removal of the cancer, but recurrence obtained in both cases.

Another conceived a second time and died of peritonitis thirteen days after confinement.

Of the three cases of intravaginal amputation of the cervix, two recovered from the operation, giving a mortality of 33.3 per cent.; the children the same.

One mother died of peritonitis; one died suddenly six weeks after confinement; and the third had two subsequent operations for removal of the malignancy, making an ultimate mortality of 66.6 per cent., or possibly 100 per cent.

The intravaginal amputations give a combined mortality from operations: of mothers 19.3 per cent., of infants 40 per cent. The above fifteen cases were operated upon at an early stage of the disease (or at a time when the conditions were most favorable for any operative measure), with an ultimate maternal mortality of 60 per cent.; that of the babies 33.3 per cent. (See Table I.)

Sixteen supravaginal amputations were done prior to the seventh month, with a mortality of 6.2 per cent.; six had recurrence of the disease, three had no return, and seven were not observed; there was, therefore, an ultimate mortality of 66.6 per cent. in the nine cases in which the records are complete; thirteen cases were lost, mortality 82.5 per cent. Of the remaining three, one went to full term, 6 per cent., and the other two were not mentioned.

One case aborted thirty-five days after conception, aborted again in forty days; conceived a third time, was delivered normally, and was well five years afterward. These cases were also in the early stages of the disease when the portio-vaginalis alone was involved, thus presenting a fair opportunity for testing the merits of the operation. (See Table II.)

There were three cases of supravaginal amputation of the cervix in puerperal state, but the data are not sufficiently complete to give very satisfactory information. Two were operated upon immediately after the confinement, one dying in seven days; the other was not recorded. The cervix in the remaining case was removed three weeks after the confinement and died two months later. The child in this case is the only

one recorded as living. The mortality is 66.6 per cent. for both mothers and children. (See Table III.)

There were twenty-three cases of vaginal hysterectomies. In two cases the results are not recorded, leaving twenty-one cases, all successful—mortality *nil.*

The statistics by Pfannenstiel (Bar thesis) give a mortality of 8.3 per cent. in thirty-six cases since 1882. Of the ultimate results two had recurrence as follows: One in eighteen months, died; one in twenty-nine months, died.

Seven others were well when examined, as follows: Two in one year; two in one and one-half years; one in two years; one in four years; one in four and one-third years.

The period of gestation at which the operations were done were as follows: One to two months, eight cases; two and one-half to three months, seven cases; three and one-half to four and one-half months, three cases. The hysterectomies were done before any very rapid extension or growth of the disease had taken place, hence the favorable results; mortality 23.4 per cent. at the end of one year. On throwing out the two cases that were well at the end of one year we have (of the recorded results) five recoveries and two deaths, or a mortality of 40 per cent. in eighteen months. Again throwing out the two cases that were well at eighteen months, we find a mortality at the end of the second year of 66.6 per cent. In this estimate all the living cases who have had no recurrences and have not gone two years since the operation are thrown out. Doubtless some of these have been permanently cured, and would reduce the percentage if accessible.

This is a very good showing for vaginal hysterectomy, which seems to be keeping pace with the advance of surgery, thus prior to 1882 the mortality was, according to Gusserow,[1] Duncan,[2] and others, 23 to 28 per cent. Later, Fritch[3] reported 16 per cent.; next, Pflannenstiel[4] estimated it at 8.3 per cent.; then Fabbri,[5] Modena, made it 4.1 per cent.; and,

[1] Gusserow: Die Neubrildungen des Uterus. Stuttgardt, 1886.
[2] Obstetrical Transactions, 1885.
[3] Bar thesis, Paris. [4] Ibid.
[5] American Journal Obstetrics and Diseases of Women, No. 200, p. 288.

finally, the writer reports twenty-one cases without a death. (See Table IV.)

There were seven cases of vaginal hysterectomy in the puerperal period from fourteen to twenty days after abortion or delivery, all recovered.

The cancers were in an incipient stage and the wombs small, so that in these respects the operations were under favorable conditions. The chief objections to operating in the puerperal state are the increased vascularity of the tissues, the usually worn-down condition of the patient, and the difficulty experienced in effectually sterilizing the vagina, constantly bathed in foul-smelling septic lochia, etc. (See Table V.)

So far there is one case of vaginal hysterectomy post-partum (done close upon confinement). This one made a very fortunate recovery, though desperate and apparently unfavorable (Case No. 65, by the writer).

These eight cases without a death demonstrate that we need not fear to operate during the puerperal period when there is a reasonable hope for success. (See Table VI.)

The total number of abdominal hysterectomies is sixteen; twelve of these were Freund's operation, one after Mackenrodt's method, and the remainder not described. Of eleven cases seven died from the operation, making the death-rate 43.7 per cent. One case had enchondroma of the pelvis; another had return of the cancer in one year; and a third had a return in a few months, and died seven days after an operation for ileus due to cancer of the intestines. These three are the only ones with complete records, therefore it is impossible to give an estimate of the ultimate recoveries. The products of conception were all lost. (See Table VII.)

Cæsarean section was done forty-three times, as follows: Conservative (or Sänger), twenty-six; Porro, nine; Freund's, eight times. Of the twenty-six conservative operations sixteen died, seventeen recovered; in two the results are not recorded, and one was dead before the operation was performed. Mortality in twenty-three cases, 43.7 per cent. The high death-rate is evidently due to the fact that these cases are

usually exhausted from prolonged labor, sepsis, etc., which unfit them for operations of this magnitude, for in the cases that do recover the wound heals kindly. In addition to the causes just mentioned, the chances for complications to arise subsequent to the operations are very much increased; thus the liability to secondary hemorrhage and sepsis is much greater than in the non-malignant. This is illustrated by the fact that of the sixteen deaths, three died of peritonitis, two from hemorrhage subsequent to the operations, one from anæmia, and two from exhaustion. Excluding the three cases of peritonitis as a factor in the death-rate of all the abdominal operations, 25 per cent. of the deaths were caused by complications not common to the non-malignant subject, and doubtless it would appear greater if the immediate cause was known in all the cases. All cases dying at the end of three weeks and under are recorded in the list of the dead. One that died at the end of two months is recorded as recovered, having safely passed the effects of the operation. Of the twenty-six cases, twenty-three babies were born alive, three dead, and two died respectively two weeks and two months afterward—mortality 11.5 per cent. (See Table VIII.)

The number of recoveries in the Cæsarean-Porro operations were four; deaths five, or mortality of 55.5 per cent. One of the recoveries went insane, after fourteen days, from chronic alcoholism. These cases were more favorable than those upon which the conservative operation was done, five of the nine having the cervix only involved.

Of the conceptions seven were saved (twins in one instance), three lost, and one not stated, giving a mortality of 30 per cent. (See Table IX.)

In eight Cæsarean sections by the Freund method there were three recoveries and five deaths, giving a mortality of 62.5 per cent.. Out of this number five babies were saved, mortality 42.8 per cent.; six of these cases were complicated, four by extensive exudates in the pelvis, one dying the next day with peritonitis (pre-existing ?) with a temperature of 39.5 C.;

another had been in labor seven days, while still another was very weak and anæmic.

This is an unfair test for Freund's operation, some of them being unfit for any attempt at radical operations, especially the four with extensive exudates in the vaginal walls. If these were thrown out (with three deaths and one recovery) the mortality would be slightly reduced. Thirty-four children were born alive, eight died, and two were not recorded, making a total of forty-four, there being twins in one case. This gives an aggregate mortality of 22 per cent.

Of the forty-three cases of Cæsarean section many were done regardless of the kind of operation best suited to them; for instance, there were seven cases of the conservative operation when the portio-vaginalis or cervix uteri alone were involved. Total hysterectomy might have been done with hope of ultimate recovery in some of them.

Again, Freund's operation was done in four cases where the exudate or disease had extended to the surrounding parts, which increased the death-rate of the operations done by this method. They were better suited to the Porro or to the conservative operations. In five of the Porro it is possible that total hysterectomy might have been effected, as the para-uterine tissues were not involved. This perhaps is not an unjust criticism, for the operations were all done in recent years and at a time when surgery was making rapid strides toward perfection; especially is this applicable to those done in the last few years, as they should have profited by previous results. While total extirpation following Cæsarean section may not give as small a mortality in the immediate results as the conservative operation, I feel assured that in *properly selected* cases it is the ideal operation where the fœtus cannot be born *per vias naturales.* It offers some hope to the mother.

According to these figures the conservative Cæsarean operation is unquestionably the safest of the three, so far as it concerns the mother. It ought therefore to be employed in all cases with obstruction to the birth of the child by extensive

exudates or where there is not a reasonable hope of eradicating the malignancy.

Porro's operation is supposed to diminish sepsis in the cavity of the uterus, but this is counterbalanced by a suppurating stump in the abdominal wound.

If, therefore, it is a question of election between the two latter operations, the feebleness or weakened physical forces of the patient ought to decide in favor of the conservative Cæsarean operation.

It might be said, however, that there are not a sufficient number of Porro's operations in these statistics to give a fair estimate of its value. I must confess that I was prejudiced against the conservative operation as done in the past, regarding it in some instances a reckless abandonment of the mother for the sake of an often-undeveloped, ill-nourished offspring that may soon die or inherit the malignancy. But such is not the case when the mother's condition is hopeless; the child's interest must then be subserved. (See Table X.)

There were three forceps deliveries with previous operations, two by incisions and one by curetting. Severe bleeding occurred in the two cases of incisions, one mother dying in twelve hours, and in the other case the child was lost. The remaining case was successful, also an additional one without a previous operation.

Estimated results in such a small collection are very uncertain, but, as far as they go, they bear out the claim that the use of the forceps is attended with some danger, chiefly from rupture of the diseased cervix and as a carrier of infection. They also support the claim of Baudelocque[1] that 75 per cent. of mothers and 50 per cent. of children recover. (See Table XI.)

I have encountered but one instance of amputation of the anterior lip during labor resulting in the recovery of the mother and death of the child. (See Table XII.)

At five different times tumors were removed intrapartum

[1] Taken from Charpentier's Cyclopædia of Obstetrics and Gynecology, vol. iii. p. 168.

by scissors, curette, forceps, thermo-cautery, etc., with four immediate recoveries of both mother and child. The case that died was a tumor of the cervix and vagina, which was partially removed ; mortality 20 per cent.

Incision of the cervix is a subject that is likely to present itself for consideration in a great many cases at or near the end of gestation. It is therefore one of considerable importance to the child and also to the mother, as it may be the means of evacuating the uterus preparatory to a subsequent extirpation.

Seven cases with five immediate recoveries (mortality 28.5 per cent.) are shown in this list. Hemorrhage is the great danger to be feared ; the two deaths in the list are chargeable to it, dying respectively in two and twelve hours. Another case was forcibly dilated by the hand and the uterus ruptured through into the bladder and peritoneal cavity. She lived for three and one-half months, and is therefore on the list of immediate recoveries. Two others died respectively in five weeks and in two years. The final results were death in all the cases fully recorded. Several had protracted confinements, as follows : One was in labor thirty-six hours ; one in labor one and one-half days ; one in labor six days ; one in labor eight days.

To this is ascribed in a very large measure the death of three babies. The infantile mortality was thirty-five per cent. After incisions the babies were delivered as follows : Four by turning, with one death ; one by extraction, with one death ; one by forceps, with one death ; two spontaneously, with one death.

Of the seven cases, four were dead within three and one-half months after labor. It appears that after the cutting the hemorrhage is so great that there is a demand for immediate delivery or plugging of the womb with the extremities of the child for the purpose of controlling it. (See Table XIII.)

Five induced abortions have been encountered with a mortality of 20 per cent., the death in this case being due to puer-

peral fever. One case had a carcinoma the size of a hazelnut, successfully removed on the seventh day of childbed. The woman conceived again, and was delivered three years later at full term. One uterus had a deep rupture of the cervix to which the curette and cautery were applied, resulting in normal childbed. The ultimate results are unknown, except in the one case, which was cured by removal of the tumor and was well at the end of three years. As abortion destroys the child and does not materially benefit the mother, it becomes a question of doubtful utility, especially in cases that are amenable to other methods of treatment.

Lewis,[1] of New Orleans, states that about 40 per cent. of all cases abort spontaneously.

Gusserow on Cohnstein says it is about 35 per cent.; only 32 per cent. of the children being born alive, and hardly 20 per cent. lived until their mothers left the bed. "Here we have 20 per cent. of living children, and one-half of them without mothers." (See Table XIV.)

The expectant plan of treatment presents a very good showing; that is, twenty-one cases with nineteen recoveries, two deaths, making a mortality of 10.5 per cent., including five cases under seven months of gestation, or 14.2 per cent. by excluding the five latter cases. Of the twenty-one cases the disease was confined to the cervix or a portion of the same, only two of which were extensive, leaving fifteen cases limited in extent; three of the remaining had invaded the neighboring tissues, and one was not stated. Thus the comparatively low mortality is explained, for a like number of advanced cases would have shown a much more woeful set of figures. (See Table XV.)

Charpentier[2] states that in forty-seven cases twelve died of rupture of the uterus and three of laceration of the cervix, or 31.9 per cent. Chantreuil places the maternal mortality at 36.7 per cent., and the writer at 24.2 per cent., the average of which is 30.4 per cent., childbed mortality.

[1] Charpentier's Cyclopædia of Obstetrics and Gynecology, vol. iii. p. 166.
[2] Ibid., vol. iii. p. 167.

After confinement, 35 per cent. died within three months of cancer, 28.5 per cent. of others had recurrences, while the remainder were not observed ; thus 64.4 per cent. were either dead or in a helpless condition soon after childbed.

Of the sixteen recoveries among the cases advanced to seven months of gestation nine succumbed to the disease, one died of an operation, and six are not reported ; thus no final cures are to be found in the list of those treated by the expectant plan.

The very good showing has changed into a very poor one.

Chantreuil places the infantile mortality at 60 per cent. ; Cohnstein at 57 per cent.; Hermann at 40 per cent.; the writer at 50 per cent.; making an aggregate mortality of 51.8 per cent.

Cohnstein (Bar thesis) states that 68 per cent. go to full term, and Hermann puts it at 28.3 per cent., which gives an average of 48.1 per cent. Then if only 48.1 per cent. of pregnancies go to full term and 51.8 per cent. of these die, the estimate of successful issue is 24.8 per cent. of all the pregnancies in the cancerous uterus.

About the best way to arrive at a conclusion as to the most satisfactory method of conducting a case of this sort is first to exclude all the operative measures that have resulted in high death-rate and accomplished but little good. Artificial abortion secures to the mother very little reduction in the childbed mortality, and defers death only for a limited time. When it is done with a view to subsequent extirpation, the advantages gained in the reduction of the size of the womb are counterbalanced by loss of valuable time and puerperal fever ; and, as the uterus can be extirpated as safely during pregnancy as at other times, artificial abortion is worse than useless.

So also should amputations and partial amputations of the cervix be discarded if any hope for the mother remains. It is true that a few cases have been cured by this means, but the number is so small that it will not pay for the chance it has thrown away for saving the mother's life. In like man-

ner all "dilly-dally" methods, such as curetting and cutting off of exuberant growths, should be eschewed as dangerous despoilers of time and opportunity.

The next consideration is whether we should act in the interest of the mother or the child, or both. In the incipiency of the disease, when the mother's chances are good, give her the benefit of it. Late in the disease, when the mother's case is hopeless, look to the interest of the child. Between these will be found cases of doubt in which there will be found room for the exercise of judgment. Careful perusal of the statistics will show that vaginal hysterectomy is the most satisfactory means of securing permanent relief in the early period of gestation.

Next to it is abdominal hysterectomy in suitable cases. The former gives an immediate mortality of 4 per cent. and an ultimate recovery of 33.3 per cent. at the end of two years. But the conceptions are all destroyed, so we have here a comparison, upon the one hand, of 33.3 per cent. of ultimate recoveries of the mothers under vaginal hysterectomy, and, upon the other hand, 20 per cent. of ultimate recoveries of the children under the expectant treatment, which proves the former decidedly preferable.

At the close of gestation, when the mother's case is hopeless, she should be delivered by such means as will best serve the child's interest, though her immediate safety and comfort should not be disregarded. In instances of partial obstruction of the cervix incision may answer. When the obstruction is complete, Cæsarean section is indicated. Of the three methods the conservative gives the best results: the infantile mortality being 11.5 per cent. against 50 per cent. of the expectant treatment. Or out of sixty mixed operations forty-four children were born alive, 70.3 per cent., showing that any of the operative measures for delivering the fœtus is superior to the expectant treatment.

In the doubtful cases the fœtus may be near the period of viability and the mother's chance hopeful. In that case gestation might be continued until the child is viable, when the

uterus should be evacuated and afterward removed. This opinion is sustained by the success attained in operations done in the puerperal state.

Thus, a short summary shows that vaginal hysterectomy should be safe in the early months of pregnancy and the puerperal state, when there is a reasonable hope for the mother.

That abdominal hysterectomy should be done under the above conditions when the uterus is too large to be rapidly and safely removed through the vagina.

That at or near the end of pregnancy, Cæsarean section (conservative) should be resorted to when the child's interest is to be considered.

That Cæsarean section with Freund's operation is permissible when the disease is confined to the uterus and the child viable.

That in doubtful cases cutting of the cervix and rapid delivery may be judicious when the incision can be made in unulcerated or non-infiltrated tissue.

That as there are four chances to one against the life of the fœtus, and as an equal or greater number of mothers may be ultimately cured in the early stages of the disease, the safety of the fœtus should not be allowed to hazard the life of the mother.

And that, upon the other hand, the futile efforts directed to the interest of the mother, when her case is hopeless, should not jeopardize the safety of the fœtus in the latter months of pregnancy.

Operations upon the Cervix Uteri.

Table I.—Intravaginal—Partial Amputation or Removal.

No.	Operator.	Bibliography.	Location of cancer.	Operation.	Result, mother.	Result fœtus.	Recurrence.	Time of gestation.	Diagnosis.	Remarks.
1	Schauta,	Zeitschrift für Heilkund., Prag, 1887.	Anterior lip.	Amputation ant. lip.,	Recovered.	Full term.	In posterior lip.	6 mos.	Carcinoma.	Cancer returned sixteen days after confinement; vaginal hysterectomy five months after recovery.
2	Bileted, A.	Centralblatt für Gynäkologie, 1884, No. 8, 44.	Polypus in cerv. canal; collum infiltrated.	Curette and cautery.	"	Full term, died subsequently.	Returned; health relatively good nine months afterward.	4–5 mos.	.....	Degeneration followed curette and cautery, and extended to the vagina.
3	Kaltenbach,	Geburtshilflishrs Lehrbuch, 1893.	Anterior lip.	Excision ant. lip.	"	Full term.	In 4 years on posterior lip.	5 mos.	Carcinoma.	Posterior lip removed, with recovery.
4	Schribe,	Inaugural Dissertation, Halle-Wittenberg, 1893.	Portio vaginalis.	Excision of cancer.	"	Full term.	In 4 years.	.....	.....	First excision in 1888, while pregnant; recovered Cancer returned in 1892; again removed by excision; recovered. Normal delivery at full term.
5	Savory,	Obstetrical Transactions, xvii. 2.	Cervix.	Scraping.	"	Pregnancy undisturbed.	Recurred.	.....	Carcinoma.	Conceived again; spontaneous delivery at seventh month; died thirteen days after.
6	Godson,	Zeitschrift f. Geburtshilfe und Gynakologie, 1875, vol. i. No. 2.	Cervix.	Scraping.	"	Lived.	.....	7 mos.	Carcinoma (cauliflower)	
7	Felsenreich,	Wiener medicinische Presse, 1883, 34	Posterior lip.	Amputation post. lip.	Died.	Lived.	.....	4 mos.	Carcinoma.	Mother died thirteen days after of peritonitis; carcinoma of lymphatic glands.
8	Helbig.	Greifswald, 1889.	Posterior lip.	Amputation post. lip.	Recovered.	Abortion.	.....	5 mos.	Carcinoma size pigeon's egg.	
9	Helbig,	Greifswald, 1889.	Anterior lip.	Amputation ant. lip.	"	Abortion.	.....	.....	Carcinoma size apple.	Fœtus size of finger.

10	Olbrich,	Greifswald, 1887.	Anterior lip.	Amputation ant. lip.	Recovered.	Dead.	.....	.....	Carcinoma size apple.	
11	Schroeder.	Taken from Ann. de Gyn. et d'Obst., Paris, 1894, xli. p. 187 (C.H. Stratz).	Anterior lip.	Amputation ant. lip.	"	Abortion 3 weeks after living conception.	.....	6 mos.	.....	Anterior lip amputated above vagina.
12	Stratz,	Zeitschrift f. Geburtshilfe und Gynakologie, vol. xii. No. 1.	Anterior lip and cervix.	Amputation ant. lip (supra-vaginal).	"	Abortion in 3 weeks.	.....	.....	.....	
	11 operators.	.....	.....	12 cases.	11 R. 1 D.	4 abortions 1 dead. 7 lived.	5 returned. 7 unknown.	.....	8 carcinoma. 4 unknown.	

INTRAVAGINAL AMPUTATIONS OF PORTIO VAGINALIS.

No.	Operator.	Bibliography.	Location of cancer.	Operation.	Result, mother.	Result, fœtus.	Recurrence.	Time of gestation.	Diagnosis.	Remarks.
13	Bar,	Thèsis de Paris, 1886.	Cervix.	Amputation (galvano-caustic) of portio.	Died.	Died.	.....	7 mos.	.....	Death of mother caused by peritonitis.
14	Schroeder,	Lehrbuch, 5th edition.	Cervix.	Amputation of portio.	Recov. from operat'n	Full term.	Died in six weeks.	5 mos.	Carcinoma.	Mother died suddenly after six weeks.
15	Vianden,	Inaugural Dissert., Bonn, 1880.	Posterior lip.	Amputation of portio.	Recovered.	Full term.	Returned.	4 mos.	.....	Subsequently two operations to remove remaining portions of cancer. Forceps delivery.
	3 operators.	.....	.....	3 cases.	2 R. 1 D.	2 full term. 1 died.	2 returned. 1 died.	.....	1 carcinoma. 2 unknown.	

TABLE II.—SUPRAVAGINAL AMPUTATIONS, SEVEN MONTHS AND UNDER.

No.	Operator.	Bibliography.	Location of cancer.	Operation.	Result, mother.	Result, fœtus.	Recurrence.	Time of gestation.	Diagnosis.	Remarks.
16	Schroeder,	Taken from Ann. de Gyn. et d'Obst., Paris, 1894, xli. p. 187 (C. H. Stratz).	Os uteri.	Supravaginal amputation.	Recovered.	Lithopedion	No recurrence.	.....	Carcinoma.	
17	Schroeder,	Ibid.	Os uteri.	" "	"	Abortion in 4 days.	No recurrence.	4 mos.	"	
18	Stratz,	Zeitschrift f. Geburtshilfe und Gynakologie, vol. xii. No. 1.	Portio vaginalis.	" "	"	.....	.....	.....	"	
19	Stratz,	Ibid.	Portio vaginalis.	" "	"	Abortion 4th day.	.....	4 mos.	"	
20	Drude,	Erlanger, 1889 (this is duplicate Case 11 of Wendriner's 61 cases).	Portio vaginalis size of fist.	" "	"	Abortion in 17 days.	.....	4 mos.	"	
21	Hofmeier,	Zeitschrift f. Geburtshilfe und Gynakologie, 1886, vol. xiii.	Anterior and poster. lips, size of a dollar.	" "	"	Abortion.	Recurrence in 7 months.	7 mos.	"	
22	Hofmeier,	Ibid.	Portio vaginalis.	" "	"	Abortion.	Early recurrence.	.....	"	
23	Hofmeier,	Ibid.	Portio vaginalis.	" "	"	Abortion,	Recurrence in 13 mos.	.....	"	
24	Hofmeier,	Ibid.	Portio vaginalis.	" "	"	Abortion.	12 months recurrence in pelvic connective tissue.	5 mos.	"	
25	Hofmeier,	Ibid.	Portio vaginalis.	" "	Died from operation.	.....	.....	.....	"	
26	Schroeder,	Zeitschrift f. Geburtshilfe und Gynakologie, 1889, vol. xvi., and 1891.	Portio vaginalis.	" "	Recovered.	Aborted after 35 days.	No recurrence.	2 mos.	"	Aborted again in 40 days. Conceived again; normal delivery. Alive and well five years after.
27	Drude,	Erlanger, 1889.	Right side, both lips.	" "	"	Abortion.	Well one year after.	2 mos.	"	Retained placenta, which was removed next day. Peritonitis; slow recovery.

28	Drude,	Ibid.	Tumor of lips size of goose egg.	" "	"	Abortion.	.....	.....	.....	
29	Seegelken,	Jena, 1892.	Cervix.	" "	"	Abortion.	Well one year after.	4 mos.	Carcinoma.	
30	Lee (N. Y.),	Amer. Journ. Obstetrics, No. 124, p. 400.	Cervix.	" "	"	Abortion.	.....	4 mos.	"	
31	Mundé,	By letter.	Cervix.	Supravaginal amput. by galvanocautery.	"	Full term.	.....	3 mos.	.....	Pregnancy unsuspected.
	9 operators.	.....	.....	16 cases.	15 R. 1 D.	12 aborted. 1 full term 1 lithoped. 2 unkno'n	3 no return 2 well 1 yr. 4 recur'nce 7 unknown.	.....	14 carcino. 2 unku'n.	

TABLE III.—SUPRAVAGINAL AMPUTATION OF THE CERVIX IN THE PUERPERAL STATE.

No.	Operator.	Bibliography.	Location of cancer.	Operation.	Result, mother.	Result, fœtus.	Recurrence.	Time of gestation.	Diagnosis.	Remarks.
32	Schroeder,	In C. H. Stratz (Zeitschrift f. Geburtshilfe u. Gyn., xii. p. 28), taken from Ann. de Gyn. et d'Obst., Paris, 1894, xli. p. 187.	Cervix.	Supra-vaginal amputation of cervix after confinement	Died 7 days later.	Unknown.	.....	.....	Carcinoma.	
33	Schroeder,	Ibid.	Cervix.	Supra-vaginal amputation of cervix 3 weeks after confinement.	Died 2 mos. after operation.	Living.	.....	.....	"	
34	Felsenreich,	Centralblatt für Gynakologie, 1884, No. 33.	Cervix.	Supra-vaginal amputation of cervix immediately after confinement.	Not stated.	Not stated.	.....	.....	"	Curetting and turning.
	2 operators.	.....	.....	3 cases.	2 D. 1 unk'n	1 died. 1 lived. 1 unknown.	.....	.....	3 carcinoma	

Vaginal Hysterectomy.

Table IV.—Pregnant Uterus.

No.	Operator.	Bibliography.	Location of cancer.	Operation.	Result, mother.	Result, fœtus.	Recurrence.	Period of gestation.	Diagnosis.	Remarks.
35	Kottbus,	Berliner klinische Wochenschrift, 1887, No. 22	.....	Vag. hysterectomy.	.....	Destroyed.	Well after 2 years.	2–3 mos.	None.	
36	Hofmeier,	Zeitschrift f. Geburtshilfe und Gynakologie, 1892, vol. xxiii. Krukenberg.	Ant. lip. (incipient).	" "	Recovered.	"	Well 4 yrs. and 4 mos. after.	3 mos.	Carcinoma.	
37	Münchmeyer,	Archives f. Gynakologie, 1889, vol. xxxvi. No. 3.	Ant. lip.	" "	.....	"	Well 4 yrs. after.	1 mo.	"	Cancer large and discharging pus before operation. Uterus partially fixed.
38	Gusserow,	Zeitschrift f. Geburtshilfe und Gynakologie, 1888, vol. xiv.	Portio vag. (incipient.)	" "	Recovered.	"	.....	1–2 mos.	"	Pregnancy unsuspected.
39	Krukenberg,	Ibid., 1892, vol. xxiii.	Cervix.	" "	"	"	Well 18 mos	.....	"	
40	Krüg,	Ibid. (Krukenberg).	Cervix.	" "	"	"	Well 1 year.	.....	"	
41	Taylor,	Med. Record, Feb. 28, 1891.	Cervix.	" "	"	"	.....	2 mos.	"	
42	Schrebe,	Inaugural Dissertation, Halle-Wittenberg, 1893.	Portio vag.	" "	"	"	Died in 18 mos.; recurrence.	3 mos.	"	
43	Mursinna,	Ibid., Würzburg, 1891.	Portio vag.	" "	"	"	.....	3 mos.	"	
44	Billroth,	.....	Cervix and vagina.	" "	"	"	.....	.....	"	Vesico-vaginal fistula.
45	Taylor,	Med. Record, Feb. 18, 1891.	Portio vag.	" "	"	"	.....	2 mos.	"	
46	Hofmeier,	Deutsche medicinische Wochenschrift, 1887.	.....	" "	"	"	.....	3 mos.	None.	
47	Thiem,	Frauenartz, July, 1886.	Portio vag.	" "	"	"	Died in 2¾ years.	3 mos.	Carcinoma.	
48	Greig Smith,	Bristol Lancet, 1887.	Portio vag.	" "	"	"	.....	2 mos.	Carcinoma (cauliflower)	
49	Bresmecke,	Mohrs, Inaugural Dissert., Halle, 1889.	Ant. wall of cervix.	" "	"	"	.....	2 mos.	Carcinoma.	
50	Bresmecke,	Ibid.	Post. wall of cervix and roof vagina.	" "	"	"	.....	3 mos.	"	

51	Kallenbach,	Ibid.	Portio vag.	Vag. hysterectomy.	Recovered.	"	.....	4 mos.	Carcinoma.	
52	Mackenrodt,	Archiv f. Gynakologie, vol. lxiv. p. 568.	.....	" "	"	"	.....	.....	None.	
53	Vander Veer,	Journ. Amer. Med. Assoc., 1892, xix. pp. 14–17.	Ant. lip.	" "	"	"	.....	2½mos.	Carcinoma, (cauliflower)	
54	Spencer Wells,	Med. Chir. Trans. Lond., lxv. p. 25; also in Ann. de Gyn. et d'Obst., Paris, 1894, xlii. 1895.	Portio vag.	" "	"	"	.....	4½mos.	Epithelioma	
55	Hernandez, E.	Ann. de Gyn. et d'Obst., Paris, 1894, ii. pp. 81, 97–187–202.	Post. lip.	" "	"	"	Good health 1 year later.	2 mos.	Carcinoma.	
56	Zinke,	Amer. Journ. Obstetrics, No. 198, p. 828.	Portio vag.	" "	"	"	.....	.....	.....	Pregnancy unsuspected.
57	Noble, G. H.	Records Grady Hospital, Atlanta, Ga.	Portio vag.	" "	"	"	Well 17 mos. afterward.	3⅓mos.	Carcinoma.	Pregnancy known to exist.
	20 operators.	.....	.....	23 cases.	21 rec. 2 unk.	Destroyed.	Recurrence, 66.6 per ct. dead in 2 yrs.	.....	18 carcin. 1 epithel. 4 unk'wn.	

TABLE V.—VAGINAL HYSTERECTOMY AFTER ARTIFICIAL ABORTION OR IN PUERPERAL PERIOD.

No.	Operator.	Bibliography.	Location of cancer.	Operation.	Result, mother.	Result, fœtus.	Recurrence.	Period of gestation.	Diagnosis.	Remarks.
58	Olshausen,	Klinische Beiträge zur Gynakologie, 1884, p. 101.	Portio vag.	Vag. hyst. 14 days after artificial abortion.	Recovered.	Dead.	.....	.....	None.	
59	Berothod,	Centralbl. f. Gynakologie, 1887, No. 29.	Portio vag.	Vag. hyst. 20 days after artificial abortion.	"	"	.....	6 mos.	Carcinoma.	Turning.
60	Lochlen,	Ibid., 1891, No. 10.	Portio vag.	Vag. hyst. during puerperal period.	"	.....	.....	.....	"	

TABLE V.—*Continued.*

No.	Operator.	Bibliography.	Location of cancer.	Operation.	Result, mother.	Result, fœtus.	Recurrence.	Period of gestation.	Diagnosis	Remarks.
61	Loehlen,	Deutsche med. Wochen.	Cervix.	Vag. hyst. 18th day.	Recovered.	.....	.....	.....	Carcinoma.	
62	Krukenberg,	Zeitschrift f. Geburtshilfe und Gyn., 1892, vol. xxiii.	Post. lip.	Vag. hyst. 17 days after abortion.	"	.....	.....	.....	"	
63	Flore,	Centralbl. f. Gynakologie, 1891, 32 (duplicate Case 12, Wendriner's 61 cases)	Cervix (incipient).	Vag. hyst. during puerperal period.	"	Dead.	.....	.....	"	Perforated child on account of exhaustion.
64	Theilhaber,	Archiv f. Gynakologie, 1894, vol. lxvii. p. 56.	Portio vag.	Vag. hyst. 20 days after delivery.	"	"	.....	.....	"	Labor established by injection of water to which lysol had been added. Os uteri contracted around child's neck, causing its death.
	6 operators.	.....	.....	7 cases.	7 rec.	4 dead. 3 unknown	.....	.....	5 carcinoma 2 unknown	

TABLE VI.—VAGINAL HYSTERECTOMY, POST-PARTUM.

No.	Operator.	Bibliography.	Location of cancer.	Operation.	Result, mother.	Result, fœtus.	Recurrence	Period of gestation.	Diagnosis.	Remarks.
65	Noble, G. H.	Trans. South. Surg. and Gynecolog. Assoc., 1894.	Portio. vag. nearly destroyed by ulceration.	Vag. hyst. 72 hrs. after confinement.	Recovered.	Lived.	Recurrence in 6 mos.	.....	Carcinoma.	

Abdominal Hysterectomy.

Table VII.—Fatal, of Pregnancy.

No.	Operator.	Bibliography.	Location of cancer.	Operation.	Result, mother.	Result, fœtus.	Recurrence.	Period of gestation.	Diagnosis.	Remarks.
66	Spencer Wells,	.....	Cervix.	Freund's.	Lived.	Dead.	In one year.	6 mos.	Epithelioma	
67	Cittadini,	Centralblatt f. Gynakol., 1892, No. 17.	Body and cervix.	"	"	"	.....	3 mos.	Carcinoma.	Enchondroma of pelvis; vaginal separation of cervix.
68	Zweifel,	Centralblatt f. Gynakol., 1889, No. 12.	Portio vag.	"	"	"	.....	6 mos.	"	
69	Zweifel,	Lehrbuch der Geburtshilfe	.....	"	Died.	"	.....	.....	.....	
70	Zweifel,	Ibid.	.....	"	"	"	.....	.....	.....	
71	Stocker,	Centralblatt f. Gynakol., 1892, No. 32.	.....	"	"	"	.....	6 mos.	.....	
72	Mackenrodt,	Archiv f. Gynakologie, vol. xliv. p. 568.	.....	"	Recovered.	"	.....	.....	.....	
73	Mackenrodt,	Ibid.	.....	"	Died.	"	.....	.....	.....	
74	Mackenrodt,	Ibid.	.....	"	"	"	.....	.....	.....	
75	Fritsch,	Deut. med. Wochenschrift, 1893, p. 1185.	Ant. lip.	"	Recovered.	"	.....	7 mos.	Carcinoma.	
76	Hernandez,	Ann. de Gyn. et d'Obst., Paris, 1894, xlii.	Cervix.	Freund's, after transfusion of salines.	Collapse.	"	.....	6 mos.	"	No. 78. Cancer extensive; returned in several mos. with cancer in intestines.
77	Hernandez,	Ibid.	Cervix.	Freund's, after curetting and cauterizat'n.	Recovered.	"	.....	5 mos.	.....	Diagnosis: *Ileus*. Operation: Removal of diseased part of intestine and made artificial anus. Died 7 days later.
78	Hernandez,	Ibid.	Cervix.	Mackenrodt method.	Recovered.	"	.....	6 mos.	.....	
				Complicated by Extrauterine Pregnancy.						
79	Martin,	Verhandlungen des Fifth Congresses f. Gyn., p.281.	Cervix.	Abdominal hysterectomy.	Recovered.	Dead.	.....	.....	Carcinoma.	Complicated by extrauterine pregnancy of 17 years' standing.
80	Munt,	Zeitschrift f. Geburtshilfe und Gynakol., vol. xxvi.	Portio vag.	" "	"	"	.....	.....	"	Complicated by extrauterine pregnancy; tubal abortion 1 month; hæmatocele.
	10 operators.	.....	16 cases.	.....	9 recov. 7 died.	.....	.....	.....	6 carcinoma 1 epithel. 9 unknown	

Also one other case in which the operation is not mentioned (see Decorzant, Bulletin Société Anatomique, 1884, p. 260). Mother died.

Cæsarean Section, Conservative, and Combined with other Operations.

Table VIII.—Conservative, or after Sänger.

No.	Operator.	Bibliography.	Location of cancer.	Operation.	Result, mother.	Result, fœtus.	Recurrence.	Period of gestation.	Diagnosis.	Remarks.
81	Schroeder,	Ann. de Gyn. et d'Obstét., Paris, 1894, xli. p. 187.	Cervix.	Cæsarean section, conservative	Died 2 days after oper'n,	Lived 2 months.	.....	6 mos.	.....	
82	Schroeder,	Centralblatt f. Gyn., 1888, p. 10.	"	" "	.....	Dead.	.....	.....	.....	
83	Grapow,	Zeitschr. f. Geburtsh. u Gyn., 1889, 1 u. 110.	.....	" "	Death from anæmia.	Lived.	.....	.....	Malignant tumor.	
84	Morris,	Brit. Med. Journ., 1883, vol. i.	Cervix and post. roof of vagina.	" "	Recovered.	"	.....	6 mos.	Carcinoma.	
85	Ehlers,	Braunschwig, Archiv f. Gyn., 1837, vol. xxx.	Cervix, uterus and vagina.	" "	"	"	.....	.....	"	Operation done 18 hours after labor began; convalescence normal.
86	Bar,	Archiv f. Gyn., 1887, vol. xxx.	.....	" "	Died 3 hrs. after but not from oper.	"	.....	.....	Osteo-carcinoma of pelvis	
87	Berthod,	Centralblatt f. Gyn., 1887, No. 29.	Cervix and vagina.	" " one hour after death.	Died of sepsis.	Dead.	.....	.....	Carcinoma.	
88	Lusk (N. Y.),	Archiv f. Gyn., 1888, vol. xxxiii.	Cervicis vesicæ.	Cæsarean section.	Died after 2 months.	Lived.	.....	.....	"	Connect. tissue infiltrated; condition unfavorable.
89	Merkel,	Centralblatt f. Gyn., 1889, No. 44.	Cervix and roof of vagina.	" "	Died 6 dys. sup. peritonitis.	"	.....	.....	"	Parametric connective tissue infiltrated.
90	Solzmann,	Königsberg, 1890.	Cervix, tuberous tumor.	" "	Died 2 days peritonitis.	Died.	.....	.....	"	Condition unfavorable.
91	Teufel,	Archiv f. Gyn., 1889, vol. xxvi. No. 2	Uterus and vagina.	" " after partial removal 7 mos. before.	Died in 21 days.	Lived.	.....	.....	"	Connect. tissue infiltrated.
92	Teufel,	Archiv f. Gyn., vol. xxxvi. No. 2.	Carcinoma (extended).	Cæsarean, Sänger.	Died 3 mos. of hemor.	Died in 2 weeks.	.....	.....	"	

93	Parak,	Revue Obstétrique, April, 1891.	Cervix.	Cæsarean, Sänger.	Lived.	Lived.	.....	.....	Carcinoma.	
94	Jeannel,	L'Abeille Médicale, April, 1891.	Cervix and vagina.	" "	Died 18 dys. exhaustion.	"	.....	.....	"	
95	Lusk,	Frommel's Jahresbericht, 1887, p. 221.	Cervix, bladder and parametric con. tissue.	" "	Died in 2 months.	"	.....	.....	"	
96	Bagdouick,	Centralblatt f. Gyn., 1891, No. 6.	Cervix and vagina.	" "	Died 15 dys.	"	.....	.....	"	
97	Gueniot,	Frommel's Jahresbericht, 1892, p. 359.	Portio vaginalis.	" "	?	"	.....	.....	"	
98	.....	Revaista Medica de Mexico	Uterus and vagina.	" "	Died.	"	.....	.....	"	
99	Munk,	Prager medicin. Wochen., 1890, No. 43.	Cervix.	" "	Recovered.	"	.....	.....	"	
100	Mendes de Leon	Nederl. Tjidschrift von Genessk, 1888, No. 2.	"	" "	Died 6 days.	"	.....	.....	"	
101	Merkel,	Munchen. med. Wochen., 1889.	Cervix and vagina.	" "	Died 8 days.	"	.....	.....	"	Operation after 16 hours of labor pains.
102	Klingelhöfer,	Inaug. Dissert., Marburg, 1888.	" "	" "	Died 2 days. hemor'ge.	"	.....	.....	"	
103	Solzmann,	Inaug. Dissert., Königsberg, 1860.	" "	" "	Died 2d dy. peritonitis.	"	.....	.....	"	
104	Goodell,	Frommel's Jahresbericht, 1889, p. 296.	" "	" "	Lived.	"	.....	.....	"	
105	Pawleck,	Frommel's Jahresbericht, 1889, p. 300.	" "	" "	Lived.	"	.....	.....	"	
106	Meyer,	Charité Annalen, vol. xiv.	" "	" "	Died 24 hrs. exhaustion.	"	.....	.....	.....	
	21 operators.	.....	6 limited to cervix. 18 involving neighboring structures. 2 not mentioned.	26 cases.	17 died. 7 recov. 1 died before oper. 1 not mentioned. Mortality, 43.7 p. ct.	25 children. 23 living. 2 dead. Recovered: 52 per ct.				

TABLE IX.—CÆSAREAN SECTION ACCORDING TO PORRO.

No.	Operator.	Bibliography.	Location of cancer.	Operation.	Result, mother.	Result, fœtus.	Recurrence.	Period of gestation.	Diagnosis.	Remarks.
107	Leopold,	Archiv f. Gyn., 1890, vol. xxxvii. No. 2.	Vagina.	Cæsarean, Porro.	Recovered.	Lived.	.....	.....	Carcinoma.	Left section of pelvis infiltrated.
108	.....	Ibid.	Cervix.	" "	Normal for 14 days.	Unknown.	.....	.....	"	Insane after 14 days from chronic alcoholism.
109	Krassowskie,	Petersburg. Gyn., 1888, vol. xxxii.	"	" "	Died.	Lived.	.....	.....	"	
110	Beaucamp,	Petersburg. Gyn., 1889, vol. xxxvi. No. 2.	"	" " with inversion of stump to vagina after Frank.	Died 4 mos. afterward.	Twins: 1 lived. 1 died.	Metastasis 4 mos.	.....	"	
111	Clauss,	Tübingen, 1890.	"	Cæsarean, Porro.	Died in 4 days.	Lived.	.....	.....	"	Extended infiltration, tympania uteri.
112	.....	Archiv f. Gyn., 1889, vol. xxxvi. No. 2.	Cervix and roof of vagina.	" "	Recovered.	Dead.	.....	.....	"	Inguinal glands infiltrated
113	Sutergin,	Deutsche med. Wochen., 1891, No. 19.	Cervix.	" "	Died in 6 weeks.	Lived.	.....	.....	"	
114	Sutergin,	Moscow, Ibid.	Cervix and roof of vagina.	" "	Died in 7 days, sup. peritonitis.	Lived.	.....	.....	"	
115	Murphy,	Frommel's Jahresbericht, 1889, p. 313.	Cervix.	" "	Died in 3 days.	Dead.	.....	.....	"	
	8 operators.	.....	.....	9 cases.	5 recovered. 4 died.	6 recovered. 3 died. 1 unknown.				

TABLE X.—CÆSAREAN SECTION ACCORDING TO FREUND.

No.	Operator.	Bibliography.	Location of cancer.	Operation.	Result, mother.	Result, fœtus.	Recurrence.	Period of gestation.	Diagnosis.	Remarks.
116	Bischoff,	Zeitschrift f. Geburtshilfe und Gyn., 1884, vol. x. Gönuer.	Cervix	Cæsarean, Freund.	Died in 9 hours.	Lived.	.....	.....	Carcinoma.	Patient very weak and anæmic; operation difficult on account of extended infiltration.
117	Schroeder,	Ibid., 1886, vol. xii. Stratz.	"	" "	Died in 1 day, peritonitis.	Dead.	.....	.....	"	Temp. 39.5° C.
118	Fritsch,	Centralblatt f. Gyn., 1892, vol. xvi. Möller.	Portio vag. and post. vag. wall.	" "	Recovered in 2 mos.	Lived.	.....	.....	"	
119	Gönuer,	Zeitschrift f. Geburtshilfe nnd Gyn., vol. x. No. 1.	Cervix.	" "	Died in 8 hours.	Lived.	.....	.....	"	
120	Schroeder,	Centralblatt f. Gyn., 1886, p. 10.	Cervix and lower part of uterus.	" "	Died in 5 hours, peritonitis.	Dead.	.....	.....	"	
121	Möller,	Ibid., 1892, No. 6.	Cervix.	" "	Recovered.	Lived.	.....	.....	"	
122	Fochier,	Frommel's Jahresbericht, 1889, p. 134	"	" "	Died 4th dy. peritonitis.	Dead.	.....	.....	"	Operation after 7 days of labor pains.
123	Hernandez,	Ann. de Gyn. et d'Obstet. Paris, 1894, xlii. p. 196.	.....	" " and by vagina.	Recovered.	.....	.....	.....	"	
	7 operators.	.....	.....	8 cases.	3 recovered. 5 died.	4 recovered. 3 died. 1 unknown.				

Operations, Intra-partum.

Table XI.—Delivery by Forceps—with Previous Operation.

No.	Operator.	Bibliography.	Location of cancer.	Operation.	Result, mother.	Result, child.	Recurrence.	Period of gestation.	Diagnosis.	Remarks.
124	Merckel,	Münchener medicinische Wochenschrift, 1889.	Cervix and roof of vagina.	Incisions.	Recovered.	Dead.	Died in two years.	At term.	Carcinoma.	Severe hemorrhage.
125	Fischer,	Centralblatt f. Gyn., 1885, No. 43 (duplicate Case 38, Wendriner's 61 cases.	Portio vaginalis.	Incisions, bleeding.	Died in 12 hrs.	Lived.	.....	"	.....	Severe bleeding.
126	Schroeder,	Ann. de Gyn. et d'Obstét., Paris, 1894, xli. p. 187.	.....	Curetting.	Recovered.	Lived.	.....	"	Carcinoma.	Puerperal fever.
				Without Previous Operation.						
127	Loehlein,	Centralblatt f. Gyn., 1891, No. 10.	Post. lip, size of goose egg.	Forceps.	Recovered.	Recovered.	.....	4 weeks before full term.	"	Vaginal hysterectomy during puerperal period; recovered.
	4 operators.	.....	.....	4 cases.	3 recov. 1 died.	3 lived. 1 died.		3 at 9 mo 1 at 8 "	4 carcinoma	

Amputation Anterior Lip (Intra-partum).

No.	Operator.	Bibliography.	Location of cancer.	Operation.	Result, mother.	Result, child.	Recurrence.	Period of gestation.	Diagnosis.	Remarks.
128	Skutsch,	Sergelken, Jena, 1892.	Cervix.	Amputation anterior lip by ligatures and tampon.	Recovered.	Mutilated; dead.	.....	Full term.	Carcinoma.	Subsequent vaginal hysterectomy; recovery.

TABLE XII.—REMOVAL OF TUMORS—INTRA-PARTUM.

No.	Operator.	Bibliography.	Location of tumor.	Means of removal.	Result, mother.	Result, child.	Recurrence.	Period of gestation.	Diagnosis.	Remarks.
129	Gönuer,	Zeitschrift f. Geburtshilfe und Gyn., vol. x. No. 1.	Cervix and vagina.	Spoon, forceps, and galvano-caustic.	Recovered.	Recovered.	Died ten months after.	.....	Carcinoma.	
130	Gönuer,	Ibid.	Cervix.	Partial removal before birth; forceps and thermo-caustic.	Recovered.	Dead.	Well two years after.	.....	Carcinoma.	
131	Gönuer,	Ibid.	Cervix and vagina.	Removed before delivery by means of cutting forceps.	Died in 3 mos.	Lived.	.....	.....	Carcinoma.	
132	Wiemer,	Breslauer ärztliche Zeitschrift, 1880, 4.	Post. lip and roof of vagina (size goose egg).	At full term by thermo-caustic; labor pains three days after.	Lived.	Lived.	Well in four weeks.	.....	Carcinoma, cauliflower.	
133	Schmitt,	Arztliches Intelligenz Blatt., 1884, p. 533.	Portio and vagina.	Partial removal scissors and forceps.	Died.	Lived.	.....	.....	Carcinoma.	
	3 operators.	....	.....	5 cases.	3 recov. 2 died.	4 lived. 1 died.	3 recovered. 2 unknown.	.....	5 carcinoma	

TABLE XIII.—INCISIONS IN CERVIX.

No.	Operator.	Bibliography.	Location of cancer.	Incisions.	Result, mother.	Result, child.	Recurrence.	Period of gestation.	No. of hours in labor.	Diagnosis.	Birth.	Remarks.
134	Brandt,	Berlin, 1881.	Cervix, deep.	2 incisions.	Died in 5 wks.	Dead.	Metastatic formations.	.....	8 days.	Carcinoma.	Spontaneous.	Parametritis; pneumonia.
135	Fischer,	Centralblatt f. Gyn., 1883, No. 43.	Portio vaginalis.	Incisions.	Died in 12 hrs. acute anæmia.	Living.	.....	.....	.....	Carcinoma.	Forceps.	
136	Steiger,	Correspond. der schweitzer Aertze, 1888, vol. xviii.	Cervix.	Deep incisions.	Lived.	Twins; lived.	.....	.....	36 hrs.	.....	Turning.	
137	Merckel,	Centralblatt f. Gyn., 1889, No. 44.	Cervix and upper vagina.	Incisions.	Lived 2 yrs.	Dead.	.....	.....	1½ day	.....	Spontaneous.	Tampon.
138	.....	Zeitschrift f. Geburtshilfe und Gyn., 1890, vol. xviii.	Cervix, polypus, lower part of cervix gone.	Incisions.	Lived 3⅔ mos.	Dead.	.....	.....	.....	Carcinoma.	Turning.	Dilatation by hand; os rigid; perforation; skull bones removed; large anterior rupture of cervix, bladder and abdominal cavity; anteflexion and compress. Foul-smelling discharge; abscesses.
139	Bousquet,	Centralblatt f. Gyn., 1890, No. 4.	Cervix.	Incisions.	Died in 2 hrs.	Dead.	.....	.....	6 days.	.....	Extraction.	Rupture of lower section of uterus; hemorrhage profuse.
140	Laguel,	Bar Thèses de Paris, p. 195.	Cervix.	Incisions.	Peritonitis; recov.	Dead.	.....	.....	6½ mos.	.....	Turning.	
	7 operators.	.....	.....	7 cases.	5 recov. 2 died.	3 recov. 5 died.	.....	.....	.....	3 carc. 4 unkn.		

TABLE XIV.—MISCARRIAGE, ARTIFICIAL OR INDUCED.

No.	Operator.	Bibliography.	Location of cancer.	Operation.	Result, mother.	Result. fœtus.	Recurrence.	Period of gestation.	Diagnosis.	Remarks.
141	Gönner,	Zeitschrift f. Geburtshilfe und Gyn., vol. x. No. 1.	Cervix.	.....	Recover'd	.....	Conceived and delivered again 3 years later; full term.	4½ mos.	Carcinoma.	Removed carcinoma, size of hazelnut, seventh day of childbed.
142	Clauss,	Tübingen, 1890.	Vagina and uterus.	.....	Recover'd	.....	.....	6 months.	.....	Birth spontaneous seventh day; deep rupture of cervix; childbed wound; curette and cautery.
143	Clauss,	Ibid.	Cervix.	.....	Recover'd	Living fœtus.	.....	5 months.	.....	Childbed wound.
144	Flocl,	Centralblatt f. Gyn., 1891, (duplicate 32, Wendriner's 61 cases).	Cervix (incipient).	Perforation of dead child on account of exhaustion.	Recover'd	Dead.	.....	.....	.....	Vaginal hysterectomy in puerperal period.
145	Heilbrunn,	Inaugural Dissertation, Würzburg, 1884.	Cervix and vagina.	Perforation of dead child.	Died in 4 weeks of puerperal fever.	Dead.	.....	.....	.....	Fever.
	4 operators.	.....	5 cases.	.....	4 recov. 1 died.	2 dead. 1 lived. 2 unkn'n.	.....	.....	1 carcinoma 4 unknown.	

Expectant Plan of Treatment.

Table XV.—Spontaneous Evacuation of Uterus.

No.	Attendant.	Bibliography.	Location of cancer.	Accidents or complications.	Result, mother.	Result, child.	Recurrence.	Period of gestation.	Diagnosis.	Time in labor.	Remarks.
146	.....	Correspond. du Schweizer Aerzte, 1890 vol. xx.	Post. lip and right side.	Deep rupture of cervix.	Recovered.	.....	In 1 mo.	.....	Carcinoma.	2½ dys.	Spontaneous birth; curette and cautery; childbed fever.
147	Schroeder.	Zeitschrift f. Geburtshilfe und Gyn., 1892, vol.xxiii.	Pelvic connective tissue.	.....	"	.....	Died in 3 mos.	8 mos.	"	.....	Recurrent cancer; ant. lip amputated 4 years before.
148	.....	Ibid.	Portio-vaginalis.	.....	"	.....	None.	.....	"	.....	Died of peritonitis from subsequent vaginal hysterectomy.
149	Salzmann,	Königsberg, 1890.	Cervix and neighboring tissue posteriorly.	.....	"	Dead (mutilated).	Not observed.	.....	"	4 days.	
150	Brandt,	Berlin, 1881.	Cervix.	Cervix ruptured in six parts by traction on foot.	"	Lived.	None.	.....	"	.....	
151	Bileted,	Centralblatt f. Gyn., 1884, No. 8.	Cervix.	.....	"	.....	Much worse 2 mos. later.	.....	"	.....	Futile attempt to use forceps; turning.
152	Floel,	Coburg Centralblatt f. Gyn., 1896, No. 32.	Cervix.	Placenta prævia.	"	.....	.....	.....	"	.....	Escape of waters five days without labor pains; turning futile; perforation; subsequent amputation and hysterectomy.
153	Döhlein,	Deut. med. Wochenschrift.	Cervix.	Fever.	"	.....	None.	.....	"	.....	Subsequent vaginal hysterectomy eighteen days.
154	Sergelken,	Jena, 1893.	Cervix.	.....	"	.....	Died in 18 mos.	.....	"	.....	Subsequent vaginal hysterectomy; recovery.
155	Heinricius,	Frommel's Jahresbericht, 1888, p. 126.	Anterior lip (extensive).	.....	"	.....	Died in 18 mos.	.....	"	.....	Amputation portio vaginalis, 2½ months later.

156	Perschin.	Ibid., 1890.	Anterior lip	.....	Recovered.	No data	In post. lip.	.....	Carcinoma.	.....	Amputation anterior lip; recurrence on posterior lip; vaginal hysterectomy; recovery.
157	Stratz,	Zeitschrift f. Geburtshilfe und Gyn., vol. ix. No. 11.	Cervix.	.....	"	Lived.	Died in 2 mos.	.....	"	.....	Supra-vaginal amputation of portio vaginalis.
158	Hooper, J.W.D.	Australian Med. Journ., 1889, N. S. xi. 417–426.	Cervix.	.....	Died next day	Died.	None.	.....	"	.....	
159	Stephens, L. P.	Atlanta, Ga. Seen by the writer.	Cervix.	Deep rupture of cervix.	Died.	Died.	None.	.....	"	.....	Husband positively forbade any interference.
160	Schroeder,	Ann. de Gyn. et d'Obstet., Paris, 1894, xli. p. 187.	Cervix.	.....	Recovered.	Died (macerrated).	Died in 1 mo.	.....	"	.....	Version and extraction.
161	Coe,	Amer. Journ. Obstet., N.Y., 1893, xxvii. 515.	Cervix.	.....	"	Lived.	Recurrence.	.....	Papilloma	.....	Vaginal hysterectomy; recovered.
162	Clauss,	Tübingen, 1890.	Cervix destroyed.	Severe hemorrhages	"	Living fœtus.	.....	5 mos.	.....	29½ hrs.	
163	Felsenreich,	Wiener medicin. Presse, 1883, p. 34.	Portio vag. size small apple.	.....	"	.....	None in 3 years.	4 mos.	Carcin'ma (cauliflower).	.....	Amputation, fifth week afterward, of portio vaginalis.
164	Schroeder.	Ann. de Gyn. et d'Obstet., Paris, 1894, xli. p. 187.	Cervix.	.....	"	.....	.....	4 mos.	"	.....	Curette and cautery.
165	Mackenrodt,	Ibid., 1894, pp. 81–97–187–202.	.....	.....	Died in 3 mos.	Died some days later.	Metastatic.	7 mos.	"	.....	
166	Mackenrodt,	Ibid. (Hernandez, E.),	Cervix (extensive).	.....	Died in 2 mos.	Died.	Died in 2 mos.	6 mos.	"	.....	
	18 operators.	.....	.....	21 cases.	19 rec. 2 died. Mort. above 7 mos. 12.5 p.c. under *nil.*	5 rec. 5 deaths Mort. 50 p. ct. 1 unknown.	8 above 7 mos. died. 5 under 7 mos. 4 died. Mort. 80 p.ct.	.....	16 carcinomas. 1 papilloma. 4 unkn'n.		

DISCUSSION.

Dr. Howard A. Kelly, of Baltimore.—Mr. President: I do not think the excellent paper presented by Dr. Noble should pass without some discussion. I should like to speak from a large experience, but although I have had to deal with a great many cases of cancerous uteri, cancer of the pregnant uterus is rare, for I have not seen more than three cases.

The plan of treatment should be somewhat as follows: If the cancer is at an early stage, simply a nodule on the cervix, presenting itself, not apparently extending out into the broad ligaments, and pregnancy is approaching its end, it will be better to allow pregnancy to go on to full term and the labor to progress naturally. On the other hand, if the cancer is more advanced we cannot operate too soon, because under the conditions of pregnancy the growth is much more rapid than ordinary. I think that we can lay down no absolute rule, but must be guided by the conditions. In very advanced cases Cæsarean section is called for.

Dr. A. Vander Veer, of Albany, N. Y.—I reported three years ago a case upon which I operated one year previous to that time, giving a summary of the cases reported to date. I felt happy about this case for two years and a half. I did a vaginal hysterectomy. At the end of two and a half years cancerous nodules appeared about the cicatrix, and the patient lived for a period of eight months. The pelvis eventually became filled with the cancerous deposit.

The other case occurred in a family where the wife was exceedingly anxious to have children. I studied her case carefully for days. She was four months pregnant and had carcinoma of the cervix. She begged me to let her go on to full term, even though her life had to be sacrificed, in order that she might have a child. She was a fairly intelligent woman, and stated to me that some of her acquaintances had recovered from removal of the uterus for malignant disease. I told her that if she was anxious to take the chances she could go on to full term. In this case we permitted the patient to make her own selection. These are the only two cases of which I have any personal knowledge.

HYSTERO-MYOMECTOMY AND HYSTERO-SALPINGO-OÖPHORECTOMY BY CONTINUOUS INCISION FROM LEFT TO RIGHT OR RIGHT TO LEFT.

By Howard A. Kelly, M.D.,
Baltimore.

The field for exsective operations is growing daily more limited, and my sympathy with this conservative movement in gynecology is so strong that I am unwilling even to speak of the more radical methods to be dealt with in this paper, without emphasizing the necessity of limiting them to extreme cases. I will, therefore, briefly review the recent conservative advances made before describing the radical plan of operating.

Radical extirpative procedures will be avoided in a large number of myomatous uteri if the surgeon will carefully study out the relations of the body of the uterus and of the uterine cavity to the tumors; he will then often find that the tumors are so disposed that he may enucleate them by one or more incisions, and save the uterine body intact. This may even be done with interstitial tumors as big as a man's head and where the fundus is raised in the abdomen as high as the umbilicus. I have in one case taken out seven tumors by as many separate incisions. Cases so treated may be looked upon from a practical surgical standpoint as closely analogous to the long uterine wound closed in a Cæsarean section.

The radical method will again be avoided in a large number of the worst forms of inflammatory cases, those in which pus has formed, by my method of free incision in the vaginal fornix behind the cervix, followed by free drainage, without the removal of any organ. An abdominal incision may be re-

quired to guide the vaginal hand in breaking up all the pus pockets.

Hydrosalpinx and adherent tubes and ovaries may be treated by breaking up the adhesions, and by splitting open the dorsum of the tube and dilating its lumen. In such bad inflammatory cases the operator should let the patient definitely understand that she takes some chances as to recovery under this plan of treatment, and may later have to submit, after all, to the radical operation.

The field left for the extirpation of uterus, tubes, and ovaries after making these important exceptions is greatly limited. It includes hystero-myomectomy for uteri distorted by myomata, or enormous myomatous masses, where the question of conservation is as yet in abeyance. It also includes hystero-salpingo-oöphorectomy for cancer affecting both ovaries, and ovarian cystomata affecting both sides, and old inflammatory cases in which tubes and ovaries are bound down in such dense adhesions that rejuvenation is impossible.

With these definitions I will now describe an operation which I practise at the Johns Hopkins Hospital, and which I have demonstrated in upward of two hundred cases within the past two years. Visitors from the American Medical Association may remember some of my cases operated on in the hospital amphitheatre, in May, 1895.

The great value of this operation is its rapidity, saving from 60 to 80 per cent. of the time consumed in the enucleation, and the method of dealing with certain serious complications.

The operation consists in the following steps :

1. Opening the abdomen.

2. Ligation of the ovarian vessels near the pelvic brim, either on the right or on the left side, clamping them toward the uterus, and cutting between.

3. Ligating the round ligament of the same side near the uterus, cutting it free, and connecting the two incisions, in order to open up the top of the broad ligament.

4. Incision through the vesico-vaginal uterine peritoneum from the severed round ligament across to its fellow, freeing

the bladder, which is now pushed down with a sponge, exposing the supra-vaginal cervix.

5. Pulling the body of the uterus to the opposite side to expose the uterine artery low down on the side opened up. The vaginal portion of the cervix is located with thumb and forefinger, and the uterine artery, seen or felt, is tied just where it leaves the uterus. It is not always necessary to tie the veins.

6. The cervix is now cut completely across just above the vaginal vault, severing the body of the uterus from the cervical stump, which is left below to close the vault.

7. As the last fibres of the cervix are severed or pulled apart, while the body of the uterus is being drawn up and rolled out in the opposite direction, the other uterine artery comes into plain view and is caught with artery forceps about an inch above the cervical stump.

8. Rolling the uterine body still further out the right round ligament is clamped and cut off, and, lastly, the ovarian vessels are clamped at the pelvic brim, and the removal of the whole mass, consisting of uterus, tubes, and ovaries, is completed.

9. Ligatures are now applied in place of the forceps holding the uterine artery, round ligament, and ovarian vessels; if the surgeon prefers, these may be tied as they are exposed without using forceps.

10. After the enucleation the operation is finished in the usual way: (*a*) by closing the cervical tissue over the cervical canal, and then (*b*) by drawing the peritoneum of the anterior part of the pelvis (vesical peritoneum and anterior layers of broad ligaments) over the entire wound-area, and attaching it to the posterior peritoneum by a continuous catgut suture.

The continuous transverse incision should always be started on the side where the ovarian vessels and the ovary and tubes are most accessible. If the case is one of fibroid uterus and the tumors are developed under the pelvic peritoneum or in the broad ligament of one side, this side should be opened up last from below upward, when the tumors can be rolled up and out with surprising facility.

Displaced ureters will not be injured, for on the side on which the enucleation is started such a ureter is pushed down with the loose peritoneum as the uterus and tumors are pulled up and toward the opposite side; and on the other side, no matter how much the ureter is displaced out of the pelvis, as the tumors caught from below are rolled up and out, the ureter drops down with the peritoneum and cellular tissue to the pelvic floor, and the operator need not even see it or be aware of its displacement to avoid the risk of injuring it. If the ureter is found to be displaced only on one side, the operation should begin on the opposite side.

To escape the danger of tying the ureter on the side on which the uterine artery is caught after dividing the cervix, I am careful to put the forceps on the artery well above the cervical stump and tie there.

The abdominal incision is always closed without drainage by using a continuous catgut suture for the peritoneum, interrupted silver-wire sutures for the fascia, a buried continuous catgut suture for the subcutaneous fat, and the subcuticular catgut suture for the skin.

The important points accomplished by this method of operating are (*a*) the great saving of time, and (*b*) the simple way in which certain serious complications are met.

a. Time saved. According to other methods of operating, half an hour or an hour, or even more, may be consumed in enucleating the tumors and in getting ready to close up the pelvic and abdominal wounds, while by this method the enucleation is often effected in three or four minutes, and in difficult cases in from ten to fifteen minutes.

The experience of every surgeon will bear me out in insisting upon the importance of saving time at this particular stage of the operation, that is, the stage of enucleation, which is most likely, when prolonged, to produce shock, and to be accompanied by excessive loss of blood.

Furthermore, when the enucleation of the disease is completed all important questions affecting the vital interests of the patient have been answered; adhesions have been severed,

important vessels controlled, intestinal complications dealt with, and tumors developed in situations difficult of access have been removed. In other words, those factors in the case which often demand an alert judgment and the highest surgical skill have all been dealt with ; the rest of the operation, closing the pelvic wound and the abdominal incision, follows a certain routine which may with safety be left in the hands of a well-trained assistant.

b. Complications met. I have insisted particularly upon the novel way in which serious complications are simplified by this plan of treatment, and I would refer chiefly to two kinds of complications.

First, fibroid tumors located under the peritoneum of the pelvic floor; and, second, inflammatory masses situated behind the broad ligaments, with dense adhesions to the pelvic peritoneum, to the rectum, and often to the small intestine.

In the case of the subpelvic-peritoneal fibroids, it is astonishing how difficult they are to get at from above and how easily, on the other hand, they roll out when handled from beneath by this procedure.

I would say the same of the inflammatory cases. Matted masses adherent in all directions which resist enucleation from above are often removed with ease when rolled up from the pelvic floor from below. The adherent structures seem to be unrolled in a natural and easy way, in surprising contrast to the difficulties experienced and the injuries inflicted in gaining the slightest fingerhold in proceeding from above.

To recapitulate—abdominal hysterectomy by the continuous incision down through one broad ligament, across cervix, and up through the other broad ligament, is contrasted with hysterectomy by an incision down to the cervix, through one broad ligament, and then down through the other, followed by amputation of the cervix.

The special advantages offered by this method of operating are :

1. The saving of from 60 to 80 per cent. of the time in the enucleating stage of operation.

2. The ease with which intraligamentary myomata and myomata beneath the pelvic peritoneum may be enucleated.

3. The ease with which inflammatory masses posterior to the broad ligament may be enucleated by attacking them from below after dividing the cervix.

4. The control of a displaced ureter on the side last opened up, keeping it out of the way of injury by the simple mechanism of the operation.

HYSTERECTOMY FOR FIBROID TUMORS OF THE UTERUS.

By Joseph Taber Johnson, M.D.,
Washington, D. C.

In the evolution and perfection of the operation of hysterectomy in the surgical treatment of fibroid tumors of the uterus, many sad and important lessons have been learned.

The first successful hysterectomy ever performed was done by Dr. Burnham, of Lowell, Mass., in 1853. Strange to say, he was compelled to suffer the same opposition and vituperation which were heaped upon the head of McDowell after performing his first successful ovariotomy in 1809, in Danville, Ky. Kimball, who assisted Burnham in his first case, subsequently operated with success, deliberately and after a correct diagnosis. In 1875 Kimball reported nine hysterectomies with three deaths. Burnham had then done sixteen hysterectomies with four deaths. These results were considered fairly good at that time. In 1878 Gusserow reported that up to 1866 Koeberle had lost all but eight out of forty-two hysterectomies, giving him a mortality of 81 per cent. Schroeder collected reports of 108 hysterectomies with a mortality of 85.3 per cent. Thomas's *Diseases of Women* reports 24 cases with 18 deaths. Storer, in 1874, reports 10 American hysterectomies; all died.

From 1874 to 1894 many changes in technique, including asepsis, the Trendelenburg position, the intra-pelvic but extra-peritoneal treatment of the pedicle, the closure by suture of the separated edges of the broad ligament, drainage when necessary through the vagina after total extirpation, have all

had their share in diminishing the mortality from 85.3 per cent.

In the June number of the *Annals of Gynecology*, Cushing publishes a report of 1670 supra-pubic hysterectomies done by American operators, with a mortality reduced to 13.8 per cent. One of the improved methods of widening the scope of this beneficent and magnificent operation and greatly reducing its mortality was introduced, advocated, and practised by Dr. B. F. Baer, of Philadelphia, who is quoted in Cushing's article as having operated 78 times with 71 recoveries and 7 deaths. This paper is presented for the purpose of reporting and recording 18 operations by Baer's method with 17 recoveries and 1 death.

CASE I.—Mrs. V., German, aged thirty-four years, mother of two children, was seen in consultation with Dr. Cannon. She had a fibroid filling the pelvis and causing great suffering from pressure on the pelvic organs. She was confined to her bed with a sharp attack of peritonitis, produced, it was thought, by a number of examinations made by consulting physicians, with hope of an operation. The tumor was situated so deeply in the pelvis that no one who had seen her thought it possible to form a pedicle, and an operation was declined. The condition of the patient demanded immediate relief, and I suggested the removal of the tumor by the method described and successfully practised by Dr. Baer, of Philadelphia, which requires no pedicle. The patient was removed to my sanatorium, and, after the usual preparation, the tumor, the uterus, and appendages were removed down to the internal os. The abdominal incision was completely closed without irrigation or drainage. An abscess occurred a week later in the tissues about the stump under the closed peritoneum, and the patient had a discharge of pus for several days, which, fortunately, found exit through an already widely dilated cervix. She made a good recovery, and went home four weeks from the date of her operation.

Not being satisfied with this operation, I sought an opportunity to see Dr. Baer carry out the technique of his method.

Having previously done thirty-four supra-vaginal hysterectomies, with the stump always clamped externally, I felt somewhat strange in this new and dangerous field of work. The Trendelenburg position was of the greatest service in bringing the parts clearly into view and greatly aiding in stitching the peritoneal flaps over the stump.

CASE II.—Miss B., aged thirty-two years, was sent to my sanatorium by Dr. Stonestreet, of Rockville, Md. She had been suffering with a growing fibroid for a number of years, both from the effects of pain and hemorrhage. The tumor reached up to a level with the umbilicus and down into the pelvis. The chief symptoms, which finally drove her to the operation, were constant and increasing pressure on her bladder and rectum. In this case also I performed supra-vaginal hysterectomy by Baer's method. The patient made a good recovery, and from a recent letter I learn that she continues well. I had the very best opportunity to contrast the intra- and extra-abdominal methods of treating the pedicle in this case, as I had operated on Miss B.'s sister some time previously for a large uterine fibroid, clamping the stump externally with a Koeberle serre-neud. The argument was entirely in favor of Baer's method, especially as the sister first operated on now has a small ventral hernia. Another peculiarity of this family, and one which I have not met before, is the fact that still another sister has a rapidly growing fibroid tumor of the uterus.

CASE III.—Miss D., aged twenty-seven years, was seen in consultation with Dr. S. S. Adams. The patient had a large fibroid reaching half-way between the navel and the ensiform cartilage. The most troublesome symptom in her case was from partial suppression of the urine; what little did pass was loaded with albumin. She also had some very queer mental symptoms, which caused her relatives to fear that she was becoming insane. Feeling sure that her kidney symptoms resulted from pressure, I proposed the removal of the tumor. She came to my sanatorium and was operated on by Baer's method. She made a good recovery, and is now able to do

the work of two women. I saw her last week and hardly knew her; said she had gained fifty pounds. She has since been married.

CASE IV.—Mrs. K., German, aged fifty-three years. Has had three children and one miscarriage. Was bleeding for three years, and for eight months previous to her operation was confined most of the time to her room, and much of the time to her bed. She had been treated by a number of men, and curetted under chloroform in one of our hospitals. She had a sloughing intra-uterine fibroid and was already septic from the absorption of putrilage. She was weakened also from long-continued hemorrhages. I feared she could not stand an operation; believing, however, that she would soon die unless relieved, I took her to my sanatorium and did what Joseph Price calls a life-saving operation. The vagina and cervix were thoroughly disinfected, the uterine cavity packed with iodoform gauze, and Baer's operation performed. Patient had a pulse of 130 and temperature of 102° at the time of the operation. She made a slow and troublesome convalescence, but is now quite well.

In none of these operations did the method have an unobstructed or fair chance. The complications and consequences have been so exhausting and unfavorable for any method that the successful results in these cases should be set down as more than usually creditable to this particular method. In addition to the exhaustion of Mrs. K., in Case IV., from loss of blood to an extent which threatened at times to be immediately fatal, her eight months in bed, and her septicæmia, she had a pyosalpinx on one side and a large dermoid tumor on the other. I felt sure at the time that no other method offered as good a prospect of cure, and I am sure of it now. Another peculiarity worthy of notice is the age of this patient. The tumor had grown since she was fifty, contrary to the statement of the text-books and the views of many practitioners.

Some time ago, in a paper on "Fibroid Tumors Growing After the Menopause," I drew attention to the frequency of the exceptions to this rule and to the fact that it could no

longer be good advice to sufferers from uterine fibromata to favor waiting for the change of life, with the promise that the tumor would disappear. Baer, Gordon, Polk and others, have recently drawn attention to this fact, and many cases have been reported of uterine fibromata, either starting to grow after a postponed menopause or continuing to increase in size more rapidly after than before the change of life occurred.

CASE V.—Mrs. C., aged thirty-seven years, mother of three children, last one ten years old. Had been in good health up to about three years ago, when she began to be troubled with profuse menstruation. Gradually she lost more and more blood, until about a year ago she began to have profuse hemorrhage, not only at the time of her periods, but in the intervals between them. The exhaustion caused by this loss of blood finally compelled her to stay in bed. I was called to see her in consultation with Dr. Caldwell, of this city, who had already discovered a fibroid tumor of the uterus, and had been treating it for some time. She had an attack of peritonitis, and the abdomen was still so tender that a perfect examination could only be made a week or two later. Electricity and all medical treatment failing to arrest the flow of blood, an operation was finally proposed, and performed at the patient's house on January 2, 1893, in the presence of Dr. Caldwell and a number of other physicians. The Baer operation, as we call it, was successfully performed. The patient made an uninterrupted recovery, had no pain, and took no medicine. Indeed, her convalescence was the most rapid and smooth and uneventful I had ever the pleasure to witness.

CASE VI.—This operation was begun with the intention of removing the ovaries and tubes, for the purpose of checking severe and dangerous hemorrhage which had resisted all other methods of treatment, including curettage and electricity, but on account of the severity of the hemorrhage I thought it would be safer to perform the Baer operation, which was accordingly done. This patient also made a quick, smooth, and altogether beautiful recovery.

CASE VII.—Mrs. G. came into my sanatorium with an

unusually large fibroid which had been growing and bleeding for fifteen years. Indeed, I was surprised, as this lady was a lecturer on spiritualism and quite a traveller, that she was ever allowed to go so far south as Washington with such a large and such a troublesome tumor. It came out easily by the Baer method, and, after considerable blood had been drained away from it, weighed nearly fifteen pounds. Alarming hemorrhage occurred while cutting the tumor away, and, at the suggestion of a surgeon who was witnessing the operation, I rapidly fastened an elastic ligature about the pedicle. I found as I proceeded to the complete removal of the tumor that this delay had been unnecessary, as the loss of blood was just as great as before; indeed, it all came from the tumor, and ceased, of course, with its removal. The color of the blood should have suggested its source, and should have allayed, instead of arousing, fears that the uterine arteries had not been securely tied. Some of the bloodvessels over the surface of this tumor and inside of it also, cut across in its removal, were as large as femoral arteries, and could no more have been dried up, or closed up by electricity, than could the veins and arteries of the arms and legs. The electricity enthusiast has yet to explain to us the selective powers of this "subtle and mysterious agent," how it is that under their wishes or control it skips over or through all the tissues of the abdominal or vaginal walls, the peritoneum and viscera, attacks and dissolves hard inflammatory products in the pelvis and solid fibroid tumors weighing ten or twenty pounds, supplied with nourishing blood-conduits as large as lead pencils. That it temporarily allays pain, arrests for the time the abnormal flow of blood, and proves a reviving and sometimes an exhilarating tonic to the exhausted nervous system, we are quite ready to admit; but the sooner the profession throws off the shackles with which our electrical brethren have been trying to bind us, as well as the too-confiding public, the better will it be for the welfare of our patients and the credit of surgery. Surgeons who have been allured after its sparkling brilliance and supposed glittering advantage over all things surgical are

now joining with us in trying to improve the technique of hysterectomy. Even Keith has now an excellent chapter in his recent book on this subject, and our beloved brethren who have been flying the "conservative" flag are among the most radical in advocating complete hysterectomy for the cure of double pus-tubes and uterine fibromata. The patient above referred to made a perfect recovery, and recent advices report her in excellent health. She has gained fully fifty pounds since her operation.

CASE VIII.—Miss R., aged thirty-two years, was brought to my sanatorium by Dr. Muncaster. She had suffered from a growing fibroid for several years. Hysterectomy down to the internal os was performed. Tumor weighed six pounds. Patient made a good recovery and went home four weeks from the day of her operation.

CASE IX.—Mrs. C., wife of a naval officer, came to my sanatorium from Portsmouth, Va. She had been a great sufferer from pelvic pains and hemorrhages for three years. Had been treated by drugs and electricity without success. After admission she was thoroughly curetted under ether. Her next period was worse than any preceding one. She had an interstitial fibroid about the size of my fist, protruding somewhat into the uterine cavity. She desired a radical operation before returning home, and readily consented to the removal of the tumor, and the uterus with it, if thought best. She already had two children, and was not opposed to the effect of the operation, which was fully explained to her. The Baer operation was done, and notwithstanding the occurrence of an abscess, which opened through the incision in the abdominal wall, she made an unusually rapid recovery, and started for home four weeks after her hysterectomy. I saw her last month. She is now perfectly well.

CASE X.—Mrs. W., aged sixty-three years, a widow, mother of three children, was sent to my sanatorium by Dr. Peter, of Georgetown, D. C. She was suffering from a bleeding fibroid. Had been curetted in Richmond once and by me twice. As relief from hemorrhage lasted only from three to six months,

I finally decided to remove the tumor and the body of the uterus, which was done on October 24, 1894, by the Baer method. She made a smooth and quick recovery, and is now well.

CASE XI.—Mrs. K., aged forty-eight years, mother of four children, came to my sanatorium from Manassas, Va., on November 11, 1894, with a large bleeding fibroid. The tumor was removed by the Baer method; recovery perfect, with the exception of an abscess under the closed peritoneum, which discharged through the cervical canal. I saw this lady recently, and her health is better than for many years.

CASE XII.—Mrs. W. was operated on in my sanatorium in June last for a six-pound uterine fibroid, by the Baer method. She did well for four weeks, when she had an attack of indigestion, and died a week later of obstruction of the bowels. Post-mortem demonstrated that she might have been saved by an operation. A simple twist was found in the small intestine, which might have been untwisted if we had properly diagnosed it, and operated in time. I do not blame the method for her death, occurring as it did five weeks after her operation.

CASE XIII.—Mrs. P. was brought to my sanatorium by Dr. Perry, of this city. She had a fibroid about the size of a child's head, which had produced obstruction of the bowels by blocking up the brim of the pelvis. As the tumor was so rotten that it tore apart in separating adhesions in effecting its delivery through the abdominal incision, it is difficult to say what or whose method was followed in its removal. By a tedious process of ligating and cutting it was finally removed, the abdomen was washed out and closed up round a glass drainage-tube. She made a rather slow recovery on account of a fecal fistula, which is not entirely closed at the present time.

CASE XIV.—Mrs. H. came to my hospital from Colorado in July last, but, being unable to receive her at that time, the operation was performed in the Garfield Hospital. After going through the various steps of the Baer operation in this

case, the cervix was removed also, as malignancy was thought to exist. The patient returned home in October, feeling very well. I examined her previous to her departure and was much pleased with her condition.

CASE XV.—Miss S., aged thirty-six years, came to my sanatorium in September from Scranton, Pa. She had a bleeding fibroid. Had been curetted and otherwise treated for a long time with only temporary benefit. She desired a radical operation, which was done by the Baer method. She made a smooth and rapid recovery and left the hospital in three weeks. Her pulse or temperature never reached 100.

CASE XVI.—Miss G., same age, came to my sanatorium from Bryantown, Md., last month, a great sufferer from severe hemorrhages for many years. Operation by the Baer method. She is now well.

CASE XVII.—Mrs. S., aged thirty-eight years, mother of three children, last one ten years old. Has been suffering from a fibroid tumor of the uterus for the past seven years. She has undergone a great deal of medical and electrical treatment with only temporary benefit. The tumor projected down into the pelvis to such an extent as to greatly interfere with the functions of the bladder and rectum, and so flattened out the vagina as to prevent a thorough examination. She was sent to Columbia Hospital for operation, November 1st, and, after the usual preparation, the tumor was removed by the Baer method on November 13th, in the presence of a number of the Fellows of this Society. I feared that pelvic adhesions would greatly embarrass the operation, but found none. The tumor came out easily, and the patient at this date (December 2d) has made a perfect recovery.

CASE XVIII.—Mrs. G. (colored), aged forty years, mother of several children. Has been suffering from the effects of pressure and hemorrhages for several years. Within the last year she has had several attacks of pain and inflammation, producing a considerable rise in temperature and pulse, and keeping her in bed for a couple of weeks at a time. The tumor was about the size of a cocoanut, almost completely filling the

pelvis. On one side of the tumor was a soft fluctuating mass, and on account of the rise in temperature was supposed to be pus and was the cause of the operation, which was performed on the 30th of November. The principal difficulty in the operation (which was done by the Baer method) was in the enucleation of a large tubo-ovarian abscess. Patient has made a good recovery so far.

These eighteen supra-vaginal hysterectomies comprise my entire experience with the Baer method. Any new method of treatment which attempts to supplant older or different methods, must, of course, be proved by experience to be the most successful in saving health and life before it can be safely adopted to the exclusion of others. This comparatively small number of cases is presented for record and to aid, as far as they go, in the evolution of this important question. The cases reported by Baer himself were so uniformly successful, and the period of convalescence so much smoother, shorter, and less eventful than that following the external treatment of the stump in my hands, as to induce me to follow his example, and thus far only success has resulted from so doing.

Baer's operation, or those operations somewhat like it, performed by Eastman, Dudley, Goeffe, Chrobak, Baldy, Polk, Krug, and others, all require more time and manipulation of sensitive and important viscera than are needed to encircle the pedicle with the wire and close the peritoneum under it.

Kelly has evolved a kind of railroad method of removing a fibroid tumor in three minutes and thirty-five seconds, very similar to Baer's, which few can ever hope to equal and none to surpass. Baer's operation requires less time and manipulation, however, than total extirpation, and leaves the patient less mutilated than if the cervix had been separated from its vaginal attachments and completely removed. In cases where the cervix is suspected of malignancy, of course, it should be extirpated. No one disputes the universal application of this rule. In performing hysterectomy surgeons should not feel bound exclusively to one particular method. Circumstances differ so completely in different cases that one cast-iron rule

of operating cannot safely be adopted for all cases. It may be necessary in order to secure the best results for some particular patient, after opening the abdomen, to change altogether our preconceived and prearranged technique of commencing or concluding an operation. The "unexpected" is so frequently found in abdominal surgery, that it behooves one, operating in this cavity, to be like Mars, armed at all points. An operator might exhaust an aged, weak, or anæmic patient by prolonging his manipulations and mutilations sufficiently to totally extirpate the uterus in conformity to his inflexible rule or method, when this same patient might have survived the quicker and safer method for her—the wire-clamp operation, as practised by Bantock in London and Joseph Price in this country. It is better to have one's convalescence prolonged two or three weeks, or even to have a ventral hernia, than to die on the table or within twenty-four hours while the various steps of some particular and unalterable method are being carefully carried out. The Bantock-Price operation has up to a recent date yielded the best results in the number of final recoveries, and we cannot safely discard it absolutely. It has its drawbacks, but it also has its advantages. It is safer for the inexperienced surgeon. An expert may safely take his choice between total extirpation and amputation at the internal os, or any modification of either of them, but until the evolution of hysterectomy shall have demonstrated more than it can at present claim, we cannot safely cling to one exclusive method for all cases. Our minds and technique must be sufficiently elastic to follow the Mikado in fitting the punishment to the crime.

March 11, 1896.—At this date Cases XVII. and XVIII. are perfectly well. Since reading this paper I have performed seven more Baer operations without a death.

DISCUSSION ON PAPERS OF DRS. KELLY AND JOHNSON.

Dr. Henry O. Marcy, of Boston.—I take great pleasure in opening the discussion on these papers, because I claim a certain relationship in the development of this operation, outlined by Dr. Kelly, which has not been fairly recognized by the profession. While listening in the ante-room to a discussion on antiseptic surgery, one of the Fellows remarked to his friend that the time had arrived to consider that the world was round without argument. So, it seems to me, we can dismiss the clamp operation, as mentioned by Dr. Johnson, as absolutely wanting in this type of operation; that it is not easier to do excepting in very few and rare instances; that it is ill-advised and fraught with serious danger, and it is of importance for the Association to review for a moment the possibilities of the operation which Dr. Kelly has so beautifully described to-day. I have profited very much by it. In the matter of review I will call attention to a paper which I published in 1880, it being the Chairman's address before the Section on Obstetrics and Diseases of Women of the American Medical Association, in which I dwelt at length upon the various steps, and clearly pointed out the advantages of the operation which is now known under the name of the Baer operation. In the International Medical Congress of 1881 I presented a second paper emphasizing the value of it and showing the different steps that should be undertaken. I have operated since that time, for the removal of fibroid tumors, by this method. The advantages of the method of leaving a stump, as Dr. Kelly has wisely pointed out, seems a great gain in the subsequent result, in that it leaves a sort of fixation point between the uterus, rectum, and bladder. It is of value again in that it does not shorten the vagina—a question of paramount importance in reference to marital life and of the many conditions that may follow in the subsequent history of the patient. [Dr. Marcy demonstrated by diagrams upon the blackboard his method of closing the wound after removal of the tumor. In his earlier operations Dr. Marcy made use of a rubber-dam, after the method of the dentist in shutting

off a tooth from the surrounding soft parts. In favorable cases, with a comparatively small pedicle, the tumor may be encircled at the base by the rubber sheet and the abdominal organs entirely excluded from the field of operation. The vessels are ligated and the peritoneum is reflected from the neck of the tumor, the cervix resected conically, and the parts are coapted by means of a buried tendon suture; the peritoneum is then intrafolded by means of Dr. Marcy's parallel continuous suture, each stitch being taken through the peritoneal flap parallel to its cut edge, and when drawn upon this portion is turned in upon itself. The suture reversed from side to side evenly intrafolds the peritoneum over the stump, and no suture is in sight—buried in the intrafolded peritoneum—*infra-peritoneal fixation of the stump.* The advantages are: no open wound within the abdomen; no points for adhesion; no drainage required—complete closure of the abdominal wound permitted—the sealing with collodion rendering subsequent infection impossible.]

I believe the time has come, in those cases where there is no inherent infection, when the surgeon has no right to subject his patient to the subsequent dangers incidental to drainage through the abdominal wound. If there is need of drainage drain through the vagina from below, where gravity will assist drainage and not act as a barrier to it. To this some of the Fellows will take exception, because there is great difference of opinion, but I think that the time is soon to come when drainage will be discarded in all aseptic cases. Dr. Kelly referred to it, but it needs to be emphasized again and again. There is great gain by this method of removal of fibroid tumors of the uterus. If we have diseased adnexa they can be easily removed and the hemorrhage securely controlled, the resected tissues coapted and the entire wound covered by healthy peritoneum by means of the buried tendon suture. The result is a peritoneum without infraction, with no points for subsequent exudation liable to cause intestinal or omental adhesions. This means a great deal as far as the subsequent safety and result to the patient are concerned. I am sure that we are working on the lines of great and general improvement, and that when the technique shall have been more thoroughly developed the time will come when the removal of large uterine fibroids will be accomplished with comparative ease and safety.

Dr. Richard Douglas, of Nashville, Tenn.—It seems the operation described by Dr. Kelly presents some advantages which he has not emphasized. In the first place, he gets the bladder out of the field of operation. He does not have to handle that viscus. Secondly, he can open the broad ligament and turn out intraligamentary fibroids without difficulty and without danger. The next and most important feature is that he reduces the risk of ligating the ureters one-half. There is no possible excuse for ligating the uterus on this side (illustrating), because the artery is brought into the field, is exposed, and you can throw a ligature around it. The only ureter in danger is the one which comes down upon the first side opened. If the operator passes in his stitch he is protected. It is an excellent procedure, and having seen the Doctor put it into practice, I can commend it.

Dr. W. E. B. Davis, of Birmingham, Ala.—We are about all inclined to accept the intra-abdominal method of treating the pedicle, and the question now is whether we shall have a pedicle or not. However, that is not the point I want to discuss; it is in regard to the time occupied in doing these operations. I have seen Dr. Kelly operate, and as you all know, he is a dextrous operator, but to turn the uterus out in six minutes does not mean much when it takes an hour or more to complete the operation. This is no reflection on the method at all, but it shows how misleading reports are. It makes little difference in doing vaginal hysterectomy whether you call it Kelly's operation by going around, or Baer's by coming down on the left and then on the right. Personally, I do not think it is well to change the name of an operation simply because there is a slight modification in the technique. The point I desire to emphasize is, that to remove the uterus in seven minutes or less does not amount to much if the condition left behind requires an hour or more to complete the operation.

Dr. I. S. Stone, of Washington, D. C.—With regard to rendering the stump aseptic with carbolic acid before closing the wound, I merely wish to say that in one of my last cases of hysterectomy, in which there was a small hæmatoma in the right broad ligament, I was about to close the abdominal wound, thinking at the time that the hæmatoma would become absorbed, but sloughing occurred owing to an infected ligature. There

was an abscess which I aspirated. Finding pus it was evacuated, the cavity washed out and drained. This case shows that a comparatively trivial thing will sometimes interfere with an otherwise favorable result. If your ligature is only slightly septic, or if you fail to make the stump clean, it makes an othewise splendid operation a failure.

We all feel that we know something about the subject of hysterectomy, and although Drs. Kelly and Baer have the credit for originating these operations, there are a large number of men whose minds and work have led them up to the points that have been described. The profession has taken hold of these operations. While I enjoy seeing these operations done quickly, and thus keeping the patients under anæsthesia as short a time as possible, I do not know how much time is consumed in closing the wounds after the removal of the uterus.

Dr. A. Vander Veer, of Albany.—In 1889, among the number of cases that came to me for operative treatment, was one almost on the line of the operation that has been described, the uterus being removed by me in a somewhat similar manner. The case has been reported and published. I was very much pleased after getting through the operation without having a serious hemorrhage, as I thought the patient might not recover if such a hemorrhage had occurred. I have done the operation twice since, and I am pleased to hear this discussion here to-day in regard to this type of operation. I have been using the Koeberle clamp, because I can do the operation so much quicker, and, really, I have no reason to regret the use of it. I have said to my assistants, and have reiterated the statement in our local medical society, that the time is coming when we must get rid of the clamp in treating fibroids of the uterus. We will go in the direction of removing the entire cervix, removing every portion of the uterus, but not mutilate the woman any more than necessary. I am very much gratified to know that Dr. Kelly preserves the vault of the vagina, and the operation which he gives to us here seems to me to be the simplest of all operative procedures to which my attention has been called. I have been exceedingly interested in his report and the remarks made by other members of the Association. We have here now almost an ideal operation, but the closure of the wound does take time. It must take considerable time if it is done carefully and cautiously.

Dr. A. M. Cartledge, of Louisville.—Just a word or two in reference to the points that were brought out in the papers, and particularly in regard to the case in which suppuration took place beneath the peritoneum and above the cervical stump. It has been my experience that this has occurred quite often. Formerly the appendages alone were removed, operators now claim, as a justification for hysterectomy, that the uterus was infected and that its removal was necessary. I do not deny this at all, and I believe it is an advance in pelvic surgery to remove the uterus in badly septic cases, where formerly we only removed the tubes and ovaries. In a septic uterus we are more likely to have abscess, and in closing off the stump we leave a vacuum above the cervical stump, the peritoneum being shut off above it. There is a certain amount of oozing, and if the cervix is at all infected we are almost sure to get a troublesome phlegmon in this situation. My experience has been that it does not kill women, but it makes convalescence very troublesome in some cases. I have been trying to avoid this by divulsing the cervix. In two or three instances I have split it, and I have been able not only to preserve the cervix but the conformation of the vaginal vault. I have carried down the dilator sufficiently to drain the raw space cut off below the peritoneum. I think the hint thrown out by the gentlemen will save many troublesome convalescences. Those gentlemen who close up the cervix entirely will have suppuration in a certain per cent. of cases.

Dr. Ernest S. Lewis, of New Orleans.—I do not know that I have much to say on the subject, except to remark that my experience with total hysterectomy for fibroids is restricted entirely to the cases that I have reported. The operations which I have performed up to the last year were cases in which a partial removal of the uterus was effected, leaving a portion of the cervix. I cannot but think, notwithstanding the majority of the gentlemen who have spoken upon the subject appear to be advocates of the partial operation, of leaving part of the cervix, that the total removal of the uterus is the best operation. In the first place, the cervix is entirely separated from the bladder, or it gives no support whatever to that viscus. If you excavate and leave nothing but a little body, it gives no support whatever to the vaginal route, and there is some danger of septic infection through the cervical canal. Otherwise we would not take the precautions we

do to cauterize with carbolic acid, or use catgut, to insure safety from septicæmia. As to shortening of the vagina, I do not see that it shortens it at all. I have performed a large number of hysterectomies for carcinoma in which the uterus has been taken out in that way, in which I have either used the clamp or suture, and I have seen no instance in which there was prolapsus of the vaginal wall after the operation.

Dr. Kelly.—I have listened with a great deal of interest to the discussion, and I thank Dr. Douglas for speaking of the point about the ureter; it is true that we are less liable to injure the ureter when the operation is performed in this way, because the ureter lies but beneath the peritoneum in the cellular tissue, and as you roll the tumor up and out you do not even see the ureter. If you had not examined the surface of the tumor beforehand you would not know that the ureter was displaced.

As to the matter of time, referred to by Dr. Davis, I hardly think his criticism is a fair one. My claim of advantage as to time does not refer to the closure of the pelvic and abdominal wound, but simply the removal of the uterus and tumors. Every operator has to close the wound he has made, but the serious delay is in the stage of enucleation. I did not speak of an entire operation as lasting from three to seven minutes. The risks in this operation are slight.

Dr. J. T. Johnson referred to cases in which fibroids appear to be hereditary. I know of several cases where two members of one family have been operated on for fibroids. These tumors seem to be more frequent than ovarian tumors. I do not disinfect the stump, but cut out a part of the cervical canal. I use cimol catgut or sterilized silver wire in suturing. I never think of draining through the abdomen in any case. I do not see the necessity of taking out the cervix and opening the vaginal vault in this operation.

Dr. Johnson (closing the discussion).—I think one of the important lessons to be derived from this discussion of hysterectomy is that the success of the operation is getting to be so much greater than it formerly was; that it opens up an avenue of escape from suffering and final death to women afflicted with fibroid tumors which was not known to them or to the general family practitioner years ago. I have had the statement made to me a number of times by patients, when speaking of fibroid

tumors, that they were being subjected to various kinds of treatment because operations for these tumors had heretofore been fatal. They are not one-half so fatal nowadays. The results of operators reported to-day are very gratifying.

Another point with reference to taking out the cervix. Where this is done it prolongs the operation, necessitates a greater amount of mutilation and more stitching, and, moreover, it seems to be unnecessary in view of the cases which have been reported here to-day as getting well without doing it.

We all believe the element of time is an important one in a good many cases. Rapidity of operation is regarded by Dr. Kelly as a great advance in the performance of this operation, but there is no doubt in my mind that ambitious young surgeons, after hearing Dr. Kelly's beautiful description of this method of operating to-day, and without seeing it, would get into very deep water by attempting to follow him. Anyone who intends to do this operation as it is outlined by Dr. Kelly should see him do it first. As Dr. Davis says, the time occupied in removing the tumor and dropping it into a pan is not so important, but that we should consider also the time occupied in closing the incision and dressing the wound. It is a misleading statement to say that a hysterectomy was done in three or five minutes, when it takes the operator or his assistant an hour or more to finish the operation after the tumor is out.

HYSTERECTOMY IN ACUTE PUERPERAL SEPSIS; WITH REPORT OF CASES.

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Hysterectomy for acute puerperal sepsis stands most prominent among the recent surgical procedures suggested and practised in pelvic work. Scarcely a year since one could count upon his fingers the reported cases. Within the year there has been enough written to evince the sharp interest surgeons are taking in the subject. It is a subject that every careful and thinking surgeon will feel requires to be approached with the greatest consideration, for the manifold aspects of the matter demand deliberation and knowledge exercised from several different standpoints. To say that hysterectomy should be performed in every case of severe puerperal sepsis is to advocate a most dangerous and irrational practice; to say that the operation should never be done in such cases seems equally unwarranted. If good practice is to be found between these extremes, it is to this end that we address ourselves.

In order to correctly comprehend our subject it is necessary to define what is meant by acute puerperal sepsis. I venture a limit of twelve weeks from parturition as a suitable time; for the victim of acute puerperal sepsis has usually died, recovered, or passed into a different pathologic category by the expiration of that time. The ideas expressed in this paper have reference solely to the pathologic changes, symptoms, and treatment of sepsis observed during the first twelve weeks following parturition. As a matter of fact, a positive

decision as to the advisability of an operation will often be demanded during the first ten days.

Puerperal sepsis is not an exception to the rule that to properly diagnosticate and treat the disease we must comprehend its pathology and natural history as learned from the bedside. The pathologic sequelæ of puerperal sepsis as found many months and years afterward in the pelvis, in which the modern achievements of surgery have been so great, have done much to direct surgeons from the true pathology of acute sepsis here.

Morbid Anatomy. I believe that the common-sense dictum, based upon the experience of many faithful and competent observers, that puerperal sepsis is rarely ever an autoinfection, will hold good. The manner of infection is threefold: (1) Hands of the physician or midwife; (2) instruments introduced into the vagina and uterus; (3) the invasion of clots without and within the vulva by saprophytic bacteria, which clots extend by continuity to intrauterine clots, thus permitting infection of the uterus from a blood-clot in contact with air. From the essentially different manner of infection and the equally different clinical history and pathologic changes, to be rational in our treatment we must consider the subject of puerperal sepsis under two heads.

Puerperal Intoxication or Sapræmia. The essential pathology of this disease consists in the invasion of dead matter, such as retained blood-clot and placental tissue, by saprophytic bacteria and absorption into the individual of the products of their growth, viz., toxic ptomaïnes. Extending, as such infection usually does, from without along blood-clots in the vagina, it is rare to observe disease-symptoms before the fourth day, and from easily divined reasons we can see how such infection of a patient might be delayed until the sixth or eigth day after labor. Sepsis following abortions and most early miscarriages is undoubtedly primarily of this variety. The toxic symptoms are very marked: sudden, severe chill, followed usually by very high temperature—much higher, indeed, than is observed in what we designate organic

or true puerperal infection; the lochial discharges are of the most malodorous kind, without evidence of much pus, but more a saneous, watery discharge. High temperature, rapid pulse, and delirium are characteristic of the severer forms of this type of sepsis. Severe pain, tenderness, and tympany are not characteristics. While the symptoms are most alarming, and may rapidly prove fatal if unrelieved, fortunately a little well-directed treatment by the curette, free antiseptic irrigation, and the introduction of a tubular drain into the uterus will cause a rapid and marked improvement.

True Puerperal Infection is essentially a septic cervicitis, endometritis, or metritis. I think this term should be employed as far as possible to define those cases of septic infection nearly always beginning in the infection-atrium of a lacerated cervix, extending thence to the body of the uterus in several different ways. First, as a purulent endometritis, which ultimately infects the Fallopian tubes. However, such a pathological course, I am satisfied, does not mark the acutely severe types of the disease, and there is more time to consider the question of operative interference. It is my conviction, from observation, that the morbid changes taking place in the structures will demonstrate that tubal changes are more in the nature of secondary or later extension of the infection, both in sepsis following sapræmia and in primary puerperal infection.

Again, the cervical infection, by virtue of its intensity, extends readily to the endometrium, also through enlarged lymphatics to the glands situated upon either side of the cervix. This adenitis, and the periadenitis which attends it, renders any bimanual examination with a view of determining the condition of the uterine appendages unreliable. Large masses may often be felt, giving the impression of diseased tubes, when in reality these structures will remain above in a healthy condition. The pericervical inflammation gives rise to abscesses which usually point beside the cervix into the vagina. Occasionally pus dissects between the vagina and rectum as far as the perineum. Again, it may dissect beneath the peritoneum

so far forward as to reach well above the pubes. The most characteristic lesion of this form of the disease seems to be the formation of subperitoneal uterine abscesses. These are usually multiple, varying in size from half an inch to four inches in diameter. They are no doubt due to direct absorption through enlarged lymphatics of septic matter from the endometrium and cervix. I think I have been able to mark the formation of these abscesses as they occurred from time to time in a case of lingering puerperal sepsis, by the temperature waves. In two cases of multiple subperitoneal abscesses I have observed there was no attachment to other peritoneal surfaces. The uterus sat up clearly in the pelvis and had much the appearance of being filled with small, multinodular myomatous growths. The propriety of an hysterectomy in such a case seems undoubted. Can we diagnosticate such a condition? With attention to the mode of infection, character of early symptoms, and physical signs, it may be made nearly as certain as most pelvic conditions.

True septic infection is due to the implantation upon the torn cervix, or more rarely the perineum, of pathogenic bacteria by the hands of the attending physician or midwife. This form of infection is probably most often due to streptococci, though such a variety of pathogenic germs have been found in puerperal sepsis; this point is not quite clear. Two points are susceptible of proof: the nature of the communication, and its origin in an infection-atrium, such as a torn cervix, more rarely the raw uterine surface. That nature, when undisturbed by unscientific and meddling midwifery, is capable of resisting pathogenic organisms found so abundantly in the vagina, we have much evidence to support. Several years ago I was forcibly impressed with what to me then seemed a remarkable fact. My hands are much given to chapping during the winter months; more than once I have had occasion to notice how my chapped hands would improve after attending a woman in confinement. In my case it was so distinct as to be plainly appreciated. I did not understand the importance in those days of as rigid asepsis

as now, and probably in the long, weary night-watch did not wash my hands before and after examinations as carefully as now.

As bearing upon this subject, the recent experiments of Stroganaff upon the bacteria of the birth-canal are of especial interest. He finds in cultures made from cervix secretion no bacteria as a rule, and that the mucous secretions of the cervix kills micro-organisms. What a lesson is to be learned from this ! The rude accoucheur who sweeps his infected index around the cervix not only makes abrasions and sows the seed of untold misery to the helpless victim, but in doing so actually robs her of that protection—an antiseptic mucus—which a generous nature has provided to protect her in case rents and tears occur from unpreventable causes. It seems a rash commentary, but one statistics would probably more than prove that all the women saved by the art of midwifery will not offset in numbers those lost by the evils attending its practice before the aseptic era.

Treatment. Our part of the subject of treatment is only to deal with cases requiring an hysterectomy for their relief, but in order to determine the propriety of this very difficult question it is necessary that we take into account what has previously been done for the patient. If the uterus has been cleansed by irrigation and probably curettage, and properly drained with tubular drainage—in other words, if the infected tract has been repeatedly and rigidly treated as we would an infected amputation-stump—and the symptoms do not yield in three days, we may suspect extension to structures which cannot be reached by such measures. We have to deal, in all probability, with a true septic infection. Combined with such rigid local treatment as has been indicated, free purgation by mercurials and salines should be practised. The septic infection once extended to deeper structures, the living tissue invaded by pathogenic organisms may yet prove amenable to less radical measures than hysterectomy. This depends more upon the course of a given case than upon any treatment that has been pursued. I have seen such a case after ten days of

marked fever, the birth-tract having been purified six days before, terminate in a lymphatic abscess about the cervix, which being incised per vaginam and drained, the patient rapidly and completely recovered. Again, I have evacuated such collections of pus about the cervix, but the temperature and all symptoms have progressed, sepsis continuing. Such a case is almost certainly one of the formation of subperitoneal uterine abscess, and demands hysterectomy for its relief. In rarer cases there may be tubal involvement as well. We must conclude, then, that the time for hysterectomy in true puerperal infection is after thorough local and general treatment has failed to stay the progress of the disease. If successful, the non-operative treatment will arrest the disease in three days. If the birth-canal is purified by mechanical means, antiseptics, tubular draining of the uterus, and the symptoms persist or become more grave, the question of hysterectomy must at once be considered. Every day lost after this status of the case is reached greatly imperils the life of the woman and diminishes the prospect of success from an operation. From what has been said concerning the morbid anatomy of cases requiring hysterectomy, I believe most surgeons would advocate the vaginal method as the safest way to deal with the majority of such cases. In the two cases of acute puerperal infection that I have subjected to hysterectomy a different procedure has been employed; but, guided by the experience of these two cases, I would now, under similar circumstances, do a vaginal hysterectomy.

Case I.—The first of these cases was in a primipara, aged twenty-four years. I saw her in consultation nine weeks after her confinement, which had necessitated the employment of instruments. The cervix was much lacerated; the posterior wall of the vagina, about one inch below the external os, contained the cicatrix of a vertical tear some two inches in length. There was also an incomplete tear of the perineal body. Fever developed in this case on the third day. Local treatment by antiseptic irrigation was practised; sepsis had been continuous and progressive. When I saw her there was great emacia-

tion, some fever; morning temperature 97° to 99° F., evening temperature 103° F.; heavy night-sweats; pulse 130 to 150, and thready; abdominal tympany and tenderness; alternating constipation and diarrhœa; in short, a typical picture of profound sepsis. Locally, there was an offensive discharge of pus and fecal matter. Examination revealed a torn perineum, about healed; a large, fluctuating sac in the recto-vaginal interspace; a small, soft, fluctuating point in the right side, of the cervix; a discharging sinus still further to the right of the cervix in the vaginal vault; the uterus could be felt distinctly enlarged. The abscess between the vagina and rectum was opened freely, the cervical phlegmon incised, and all together, with the uterine cavity, freely irrigated with mercuric chloride, 1 : 2000; drainage by antiseptic packing. Stimulants and iron had already been prescribed in what seemed to me to be the proper way. This treatment was faithfully persevered in for ten days, the wounds being cleansed and irrigated twice daily. No improvement in any of the symptoms followed. It was a fearful thing to contemplate, much less advise, an hysterectomy in a patient so advanced in sepsis and so thoroughly bad from an operative standpoint, yet it was advised as a last resort and accepted.

Operation was performed on February 16, 1895, eleven weeks after confinement. I selected the combined abdominal and vaginal method, for I suspected extensive tubal and broad-ligament disease. The operation was completed in fifty minutes. The specimen which I exhibit to you displays the pathologic changes found, except that I wish to say in making the abdominal incision I encountered a quantity of green pus between the peritoneum and fascia, which had dissected subperitoneally from the cervix anteriorly by the neck of the bladder and above the pubes. The interior of the peritoneal sac was smooth and without adhesion of any of its surfaces. The uterus was removed by ligating the ovarian arteries and clamping the uterine arteries and lower portion of the broad ligaments from below with a single pair of light forceps on either side. The uterus was delivered above, as pus

from the first incision had already defiled the peritoneum. Liberal, thorough irrigation from above, and drainage made with gauze per vaginam, were practised. After closing the peritoneum above, the lower abdominal wound was packed with gauze. The patient left the table with a pulse of about 160, and it remained around this point, varying from 148 to 174, for six days. After this there was a gradual improvement for a week, the pulse going as low as 120. The vaginal wound did fairly well; the peritoneal wound healed without the slightest evidence of peritonitis; the abdomen remained flat; bowels moved freely in their efforts to eliminate septic matter accruing from other storehouses. During the latter part of the second week evidences of metastatic infection developed; the blood was so charged with septic matter that the irritation produced by hypodermatic needles was sufficient to cause localization of pathogenic bacteria and abscess formations. A small pulmonary abscess developed which ruptured in the bronchus, giving rise to a most horrible odor. This complication, however, seemed wellnigh overcome by the vital resistance, when, in the third week after the operation, constitutional pre-existing blood sepsis continuing, signs of cerebral infection became manifest, and death closed the scene, March 6th, eighteen days from date of the operation.

While this case terminated fatally, it was most instructive. It contained much of the pathology of progressive puerperal infection, illustrating in a most beautiful way the uterine lesion with multiple uterine subperitoneal abscesses. It is also instructive as leading us to believe that if such cases are operated before the blood is irreparably charged not only with toxic ptomaïnes, but pathogenic bacteria as well, that there is a very good prospect of recovery. Our methods are adequate to stay peritonitis even in the presence of vast quantities of very aseptic pus, provided such pus is in contact with the peritoneum for a short time only.

Case II.—Lady, aged thirty years; second confinement. She was delivered April 22, 1895, by forceps. Three days after confinement there was a slight chill, followed by fever

temperature reaching 103° F. A vaginal douche and purgatives were administered. The fever did not decline, but I was informed reached 104½° F. several times during the subsequent week. There was considerable abdominal distention and pain. Under large and frequently repeated doses of saline cathartics, combined with local treatment by irrigation, the temperature subsided, being marked by normal temperature in the morning, evening temperature 101° to 102° F. ; distention greatly diminished ; very slight, purulent vaginal discharge. This was essentially the condition of the patient at the time I first saw her, on May 14th, or twenty-two days after delivery. An examination revealed a small cervical phlegmon in the right side which had broken into the vagina and was discharging ; the uterus was perceptibly enlarged and inclined toward the right, giving the appearance of a mass in that side. Thinking the process of involution had been arrested by septic infection, and that the lower cervical phlegmon not draining properly might account for the symptoms, I curetted this thoroughly, irrigating the uterine cavity with an antiseptic solution, with the implantation of a tubular drain in the uterus. The symptoms were not relieved by this practice ; per contra, the next ten days showed a varying temperature with progressive asthenia ; the evening temperature would occasionally rise to 103° F., followed by a profuse sweat at night, the morning temperature occasionally subnormal. The clinical picture presented by this case seemed to me most typical of Case I., as I learned it from the attending physician. I felt sure that the condition of progressive yet slow sepsis was going on in the deep uterine tissue, and that in all probability the formation of just such phlegmons as occurred on the cervix and broke into the vagina was taking place beneath the uterine peritoneum. My experience in the first case led me to urge hysterectomy as offering the only prospect of recovery. This alternate was accepted both by consultants and the patient.

The operation was performed May 26th, five weeks after birth of her child. The patient was much emaciated, pre-

senting a picture of continued sepsis; the pulse ranged from 110 to 138. I thought it more than probable there was extensive tubal involvement, and selected the abdominal route. The uterus was removed by ligating the broad ligaments, and a complete enucleation with the exception of the merest ring of cervix. Some difficulty was encountered in separating the uterus from the bladder on account of extensive peri-cervical and metral inflammation. The small portion of cervix was completely divulsed, and after most liberal irrigation, poured through from above, a gauze drain, well impressing the broad ligament stumps, carried through into the vagina. The peritoneal flaps were approximated by a running silk suture, and the abdomen closed without drainage. Her convalescence was not an easy one, the pulse ranging as high as 170 on the second morning following the operation. The septic broad-ligament stumps suppurated freely through the vagina, but did not impress the peritoneum above, this structure remaining intact and unirritated; bowels moved liberally and freely when called upon to do so. After the second week convalescence was steady, and except for the slight debility which would naturally follow so severe a septic infection, the patient is now well. The specimens which I show you reveal one large subperitoneal uterine abscess on the right side, with the evidence of other smaller ones throughout the uterine tissue. As in Case I., this abscess, when viewed from above, looked very much like a neoplasm. There was limited disease of the right tube, which had not gone on to suppuration; there was no adhesion of the peritoneal surface within the pelvic cavity.

Conclusion. 1. From our present knowledge of the causation and nature of puerperal infection, we may say it is largely a preventable disease.

2. When occurring, it is of the greatest importance to differentiate between puerperal intoxication or invasion of a piece of putrescent placenta or blood-clot by saprophytic germs, and true septic infection or invasion of living cells by pathogenic bacteria. Puerperal sapræmia, though in many cases producing the most alarming symptoms, is usually amen-

able to energetic treatment by curettage, antiseptic irrigation, and satisfactory tubular drainage of the uterine cavity.

3. True septic infection should be treated by sterilizing the birth-canal at the earliest possible time, free elimination by purgation, and the prompt evacuation of superficial abscess accumulations about the cervix. Such a course may save the patient from more radical measures.

4. The chief differential points between puerperal intoxication and true puerperal infection are the comparative absence of pain, tympanites and abdominal tenderness, and the more sudden onset and severe character of the symptoms in puerperal intoxication. Hysterectomy as a primary measure is never justifiable in septic intoxication, and when necessary it can only be after the mixed or secondary infection which may follow in the track of a primary sapræmia.

5. Progressive involvement of the deeper structures, as evidenced by daily elevation of temperature, probably 103° F. in the evening and subnormal in the morning, together with night-sweats, scanty secretions, ascending pulse, are indications for hysterectomy.

6. It is often impossible from the involvement primarily of the low pelvic structures to make a bimanual examination which will reveal the true condition of the uterine appendages. But in view of the fact that these structures are not so prone to be invaded in the acute violent type of the disease, vaginal hysterectomy should be the operation of selection.

DISCUSSION.

Dr. C. A. L. Reed, of Cincinnati.—This paper of Dr. Cartledge is a contribution which emphasizes a line of practice which, I am sure, is destined to have a much wider recognition and much more general application. When I say much more general application, I do not mean to imply that it will be applied beyond the limits prescribed by the essayist for its utility, but that those conditions and limitations will be recognized more generally,

and the diagnosis which is arrived at will prompt action much more generally than in the past. It is but recently that we have learned to appreciate to its full value exact pathologic changes which take place in these cases of puerperal septicæmia. The blood states have been understood and comprehended for a long time; general constitutional contamination has been recognized. We have been blamed for the multiple abscesses which follow in the wake of symptoms; we have not been prepared to believe that the local pathology was anything more or less than multiple abscess of the uterus. Being a case of multiple abscess of the uterus, what are we to do with it? What is to be expected from removal of this uterus which in the aggregate can be called an abscess itself? Preliminary to this, in dealing with the more acute stages, I note with considerable interest the gentleman's plan of treatment, and wish to commend it. There are two points, however, which I wish to mention and which, I believe, to be invested with considerable practical importance: I allude, first, to the use of the curette in these cases in the early stage and before the formation of abscesses. While the cases are yet in that category where the essayist says they ought not to be operated upon by the radical method, in the curettement of them every precaution ought to be taken to prevent further absorption of the ptomaïnes and of pathogenic bacteria which infest the endometrium. I have for some years been in the habit of packing these cases after curettement, not by dry iodoform-gauze, but with gauze thoroughly saturated with sterilized glycerin. My object in doing so was to secure the local exosmotic effect of the glycerin, and to establish as far as possible a reverse current in the absorptive field. I have been satisfied with that method of practice.

Another thing I believe to be a mistake in these early cases is the administration of large doses of active cathartics, particularly of the hydragogue class. Hydragogue cathartics and our salines, as sulphate of magnesia, in full doses will drain the circulation of its watery element, and create a thirst on the part of the circulation which puts in extreme activity every possible absorptive function of which the system is capable. An infected area in the uterus does not escape this demand. The absorptive function is rendered more active by over-purgation which is frequently practised in these cases. I do not wish to be under-

stood as opposing laxatives, and the emunctories should be stimulated within reasonable limit, but when salines are given to the extent of draining the circulation you simply stimulate absorption and favor a more rapid taking up of the poison from the ocal nidus.

I cannot but think in the last case reported by the essayist, that he would perhaps have had an easier operation and a smoother convalescence had he selected the vaginal route for the operation and done complete extirpation by that route. I believe the summary of his paper leads to that conclusion. The complete drainage with which we are all familiary following cases of vaginal extirpation prompts us to apply this method of operation wherever we may find it expedient, and wherever easy drainage is a *desideratum*.

I wish, in conclusion, to thank the essayist for his valuable contribution. It is one which I believe will serve in emphasizing a line of practice which is destined to figure as one of great importance among our resources.

Dr. H. P. C. Wilson, of Baltimore.—I want to thank the Doctor for his admirable essay on hysterectomy for puerperal sepsis. I have had no experience with this operation for such cases, but I believe if the cases of puerperal septicæmia were early diagnosed and prophylactic treatment was adopted, it would be seldom necessary for us to resort to hysterectomy for puerperal sepsis. I have had in my practice a great many cases of septic peritonitis, of different forms of septicæmia, and I believe if on the first indication of this trouble the uterus is thoroughly curetted we would have control of the cases in by far the larger proportion of instances. I would not use the curette in a case of an early delivered uterus. I would use my finger-nail as a curette, passing one finger into the uterus, by which you can intelligently determine the seat of the sepsis and of absorption, and curette that instead of curetting the whole uterus as you do with an ordinary curette. If this procedure was resorted to thoroughly at the commencement of puerperal sepsis, and the uterus washed out every three or four hours thereafter (not the vagina), by passing a tube to the fundus and throwing in sterilized water, nothing else, doing it repeatedly and removing the septic matter as it originates, I believe we would have under control these cases in a very short time. I believe with Dr.

Reed that we should not use excessive purgation in these cases for the reason that he gave. The more we drain the bloodvessels, the more eager they are to be filled with fluids wherever they can get them, and absorption will be increased in this way. I approve of moderate purgation, but the habit of administering saline purgatives and starting the bowels as you would a hydrant increases the amount of absorption of septic matter; in other words, you remove the product of sepsis with all your power from the beginning, then by means of your finger-nail you can intelligently and perfectly curette the infected surface, and do it once, twice, three times, or as often as you find it necessary; then wash out the uterus by carrying a double tube to the fundus, washing it every three or four hours until you get no offensive discharges from it, and in nine cases out of ten you will arrest the puerperal septicæmia.

Dr. Daniel T. Nelson, of Chicago.—I regard the finger as the best curette that was ever made. If it is long it will reach where you want to go always. If it is an intelligent finger, it will not do any harm. If you cannot reach, under ether, every part of the uterus—and occasionally in a bad case of miscarriage with retained placenta you may not be able to do this—you can then use an ordinary curette; but do not forget the use of the fingers as a curette in such cases.

A word or two about purgation. Do not give salines to prostration. Do not promote absorption by the administration of salines, but give them for the purpose of excretion. If your uterus does not contract properly, make it do so, for a flabby uterus will certainly absorb better than one that is not flabby.

Dr. George H. Noble, of Atlanta.—I congratulate the essayist upon the success he has attained at a time when the line of demarcation between the classes of cases mentioned is ill-defined. He deserves great credit for accuracy of diagnosis in this instance.

I would like to mention a procedure that has served me well in a number of instances, and quite recently saved the necessity of hysterectomy in a case where that very deceptive instrument, the curette, had failed.

The woman had been confined about ten or twelve days before I saw her. At that time her temperature ranged from 104° to 105.5°; pulse rapid and feeble. The uterus was thoroughly

curetted by a very competent assistant, without improvement, as the instrument had evidently left little strips of infected mucosa behind, which reinfected the case through *antres* newly made.

The patient was placed in the hospital, curetted with a Volkmann spoon and rewashed. On exploring the cavity with the finger the interior was found to be in a soft pulpy condition, caused by the particles of softened mucosa and blood.

A strip of sterilized gauze was wrapped around two fingers, the uterus well crowded down upon them with the other hand, and the uterine cavity thoroughly scrubbed, wiping away fragments of mucous membrane, blood, etc.

The cavity then appeared free from débris and gave a sense of friction to the finger, showing thorough and effective mechanical cleansing.

This was followed by packing gauze boiled in a 1 per cent. soda solution, the object of which was to fill up the uterus and prevent accumulation of septic fluids, the inflamed uterus not being able to contract or expel its contents. With the presence of the gauze the fluids will be forced in the direction of the least resistance, which is through the cervical canal.

The result in this case was that for forty-eight hours the temperature was normal, then the gauze was removed and the intra-uterine douche used often enough to keep the temperature below 100°.

I mention this to emphasize the fact that we may avoid doing hysterectomy when we adopt proper measures early.

Dr. L. S. McMurtry, of Louisville.—In the discussion of this important subject we must not lose sight of the fact that puerperal infection is the causal factor in the larger class of cases which apply to the gynecologist for treatment. All the cases of pelvic inflammation, except such as have their starting-point in gonorrhœal or traumatic infection, originate, as a rule, in puerperal sepsis. Puerperal sepsis, both in primary and later lesions, presents a variety of clinical and pathological features which demand more thorough analysis and classification than has as yet been made. The paper under discussion is an important contribution toward such an arrangement of the manifold lesions of this disease and the surgical treatment of the same.

The most crude methods have been observed in formulating the indications for operative treatment in cases of puerperal

sepsis. It has been suggested that after thorough curettage, should the symptoms fail to abate and the pulse and temperature remain high after a fixed time, hysterectomy should be done. This I regard as dangerous teaching and even more dangerous practice. It should be the rule here, as in other diseases requiring surgical treatment, that operations be applied to distinct and well-defined lesions. Hence the pathology of puerperal sepsis should receive most thorough study in order to form a substantial basis for accuracy in diagnosis and a guide to surgical treatment.

Indiscriminate curettage in puerperal sepsis is, indeed, most harmful. In many instances where nature's own method would limit the area of infection to the utero-vaginal canal, and by a granulating zone shut off the general vascular system, the curette breaks down these barriers, opens the mouths of newly-closed vessels and diffuses septic material throughout the system. In appropriate cases the curette will render valuable service in cleaning away débris; but its routine use in this disease must be condemned.

The paper just read, with specimens described, brings before us for consideration those grave cases of puerperal suppurative metritis which can only be cured by prompt resort to radical surgical measures as described.

Dr. James Evans, of Florence, S. C.—I think in some cases too much stress is laid upon infection taking place from the cavity of the womb during the puerperium. It is by no means an unusual occurrence after labor for the discharges from the uterus to become slightly offensive, and not the slightest rise of temperature to occur from sepsis afterward; this is, if I mistake not, the usual course of labor among the negro women of the South, more especially those who reside in the rural districts, although, from their environment and the ignorant midwives who attend them, every antiseptic precaution is disregarded, which renders them as a class peculiarly susceptible to this fever. While the ignorant negro midwife pays very little attention to cleanliness she rarely makes a vaginal examination and usually waits, sometimes for hours, for the spontaneous expulsion of the placenta, and when assistance is required in its delivery, she restricts her efforts to pulling at the cord, and never attempts to remove it by the introduction of the hand into the vagina and womb. There may be a laceration of the cervix, or a rupture

of the perineum, and infection from bacteria, or some septic material may take place through this avenue and be carried by the lymphatics and absorbents to the pelvis and general circulation. I do not believe it is necessary in every case to curette the womb in puerperal sepsis, or to thoroughly wash it out, because when infection has occurred and produced fever, the septic condition has gone beyond the reach of both the curette and uterine irrigation

Dr. Henry O. Marcy, of Boston.—I can conceive of no subject which is more important and practical than the one under discussion at this time—puerperal sepsis. We have to deal with this condition in different ways on account of the character of the infection. If the infection is caused by the streptococcus we may be sure the case will take on a serious aspect. If we have to deal with the staphylococcus we are reasonably certain it will deeply involve the uterus and its adnexa. The subject is so extensive that we could occupy the entire evening discussing it, and yet not exhaust it. Let us suppose that it is the ordinary micrococcal infection (staphylococcus) with which we have to deal; we are sure that it is limited; that there will be no breaking down and casting off of the dead endothelial mucous membrane. Nature may take care of that. If a doctor embraces the opportunity to use the curette in septic conditions, he is sure to do damage. He plows the field and leaves behind seed for further implantation; hence it is the province of a body like this to instruct the general practitioner how to treat such cases. He should be taught when and when not to use the curette. If we have a streptococcus to deal with, the infection has gone beyond the mucous membrane of the interior of the uterus. We have a temperature which we cannot reduce very much, and the practitioner should understand that washing out the uterus itself does no good toward curing the patient; that by curettement he rekindles the disease, which is followed by elevation of temperature, and the patient goes on from bad to worse. It is very important, therefore, that the surgeon should thoroughly understand just the kind of enemy with which he has to deal, and should be prompt to recognize it. If there is any one thing the general practitioner needs to be taught it is where his limitations shall cease and the work of the surgeon begin.

I saw last week in consultation a patient who has since died.

The attending physician had used the curette, packed the uterus with gauze; in redressing he had failed to remove a large piece which had for days served to retain the putrescent material. He let the nurse wash out the uterus with this piece of forgotten gauze in it, and thought he had done his duty.

I remember a series of seven cases that were contaminated by one practitioner. Five out of the seven were fatal. Upon being called in consultation I declared that if he did not stop such obstetric practice I would publish his results. It was only through this threat that he ceased contaminating his patients. I took cultures and found the streptococcus.

Dr. George H. Rohé, of Catonsville, Md. — Good Episcopalians confess on Sundays to having done those things which they ought not to have done, and to have omitted to do those things which they ought to have done. The man who curettes the uterus too often certainly does one of those things that he ought not to have done. Let us take a uterus with infection of the endometrium, and I do not think any man who has ever seen the interior of such a uterus would admit that any amount of curetting would remove the infected material. The too frequent use of the curette is in my opinion very bad practice indeed.

I am hardly satisfied with the extent to which Dr. Cartledge has recommended extirpation of the uterus in cases of puerperal sepsis. He might have gone much farther and been more energetic in defending this procedure. If it is needed, it is needed promptly. It is needed not after, but before curetting has been done. The main point lies in making the diagnosis. We do not always know when to take out the uterus. I think we would not make so many mistakes if it were taken out oftener than it is in cases of puerperal sepsis. Those who have made post-mortem examinations in cases of puerperal septic infection, and have seen the inside of the uterus and examined its walls, know how hopeless it is for a patient to get well while the uterus remains in the body. If the patient gets well it is because Providence in some mysterious way helps her through. The curetting or uterine douching certainly cannot be credited with the cure.

Dr. Cartledge (closing the discussion).—I have only a few words to say. In writing this paper I had great difficulty in getting the subject properly classified, and I do not know that I have it properly classified now. Certainly, I have been struck

within the last year, in reading the opinions of different surgeons, with one fact: that to follow some men would be most irrational practice. These men advocate hysterectomy in all cases of severe puerperal infection. I think it would be well if we could lay down some rule, but this is a difficult thing to do. The diagnosis is not always easy—primarily between septic intoxication and true septic infection, and these gentlemen all seem to agree with me that they would try to do something before resorting to hysterectomy. I advocated that we are to cleanse the birth-canal, and that if there were blood clots or pieces of placenta present they should be washed out; that if we did not have these things, and yet there was puerperal sepsis, we undoubtedly had streptococcus infection to deal with. One thing is sure, that if the uterus is properly cleansed and blood-clots removed, the patient is going to get better in three days. If not, it is because of organic infection, and the case is one for hysterectomy. The danger lies in saying that all cases should be operated on. We know that many cases can be relieved without hysterectomy. I make it a rule to treat my cases for three days, and then, if I find there is no sign of improvement, I resort to hysterectomy. It seems to me, that with our present knowledge of the subject, this is a wise course to pursue.

SPLENECTOMY STATISTICALLY CONSIDERED; WITH REPORT OF A CASE.

By Richard Douglas, M.D.,
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Assuming that the Association is deeply interested in the evolution of abdominal surgery, I presume to trace the history of splenectomy, which will reveal forgotten facts established by the surgeons of old, which challenge the criticism and shame the technique of the most modern.

Physiologists are yet discussing the rôle that the spleen plays in the animal economy, a question that was practically settled by Viard about the middle of the sixteenth century, he having removed the spleen from three patients, all of whom made perfect recoveries. Some twenty years before, Zacarelli appears as the first surgeon who successfully removed the spleen. These cases were not generally published, and but few had the temerity to follow such brilliant leaders. As a consequence, in the next two hundred years we find but twelve splenectomies. A large percentage of these were for wound, with a protrusion of the organ. From 1800 to 1876 I find twenty-eight splenectomies recorded with wide intervals. The next decade yielded about seven per year. In 1888 it was the fad of the day, twenty-one operations being reported in that year, the work chiefly of Italian, German, and French surgeons. Their mortality, over 50 per cent., was not encouraging, and since that date we have had only forty-five operations, a very small number when we consider the rapid progress of abdominal surgery and the immense amount of work done in this special field. We must conclude then that splenectomy is not a popular operation, at least with those surgeons

who operate for statistics. The consensus of surgical opinion seems somewhat adverse to this operation. I hold that such a position is erroneous, as it is based upon statistics considered in the aggregate. If the proper analysis of these statistics be made and due consideration be given to the associate general condition, we can establish the fact that under certain circumstances the operation is justifiable.

Gathered from all sources I can find on record 194 splenectomies. Of these 126 were females, 57 males, and in 11 cases the sex was not given. Furthermore, we find that in 46 cases the operation was undertaken for wounds or injuries. Of this number 26 were males and 14 males. If we deduct these we find that the ratio of splenectomies for disease is 31 males to 112 females, showing the latter sex to be much more predisposed to disease of the organ.

Recalling that the weight of the adult spleen is only about seven ounces, we are awed by the pathology that so perverts nature as to magnify it into eighteen and one-half pounds, the largest spleen ever removed. The operator was H. S. Brown, of England; the condition was leukæmic hypertrophy. The patient died five hours after the operation, probably from hemorrhage. The largest spleen ever removed successfully weighed eleven pounds; the operator was Franzolini.

The size of the diseased organ has an important bearing upon the prognosis. In 41 cases in which the spleen weighed two pounds or more the mortality was 68 per cent. We should at least consider these figures in advising operation. Of the 194 cases eight are entitled to be ranked as splenectomies, the operation in these cases being partial splenectomy for the removal of the protruding portions after wounds and herniæ. This reduces the total number of splenectomies to 187.

We may make a pathologic classification of these cases as follows: Leukæmia, 36 cases; 31 deaths, 5 recoveries. In only seven of these cases do the data show a microscopic examination of the blood. Doubtless this investigation was made in many others, but it is not so recorded, and I am forced

to accept such statements as "leukæmia," "leucocythæmia," and "leukæmic spleen" for the diagnosis and classification. In this class of cases we are at once confronted with a mortality of 86 per cent., which, unless we can discern something radically wrong in the technique, places the leukæmic spleen out of the pale of operative possibilities, and we dare not charge this when such masters as Péan, Czerny, Wells, and our distinguished American, Roswell Park, were the operators. Of the 31 deaths 16 were positively stated to be secondary hemorrhage, 9 others died from shock, and we all know that in abdominal work this term is only too often synonymous with hemorrhage. Should not this establish the fact that leukæmia is a general blood disease of which the hypertrophied spleen is an effect and not the cause? These patients are hemophiliacs, and leukæmic spleen should be eliminated from the field of operative interference. Since we have only five successful cases of removal of leukæmic spleen, their paucity entitles them to detail record.

Case I.—Operator, Franzolini; date, 1881; time of operation, twenty minutes. Patient, female, aged twenty-two years; laborer.

Diagnosis: Abdominal tumor from childhood; suffered from gastralgia, from 12 to 14 years ascites and œdema in lower extremities. Menstruated at seventeen, scarce and irregular. Symptoms of jaundice, no intermittent fever. At the beginning of 1879 dull pain in the upper quadrant to left of stomach. Tumor hard, very little or not at all movable, obstinate vomiting, acute pain prevented rising to the feet. Blood rich in leucocytes, five times to normal. No albumin in urine.

Operation: Prepared by purgative pills; diet exclusively flesh for three days. Incision in linea alba 22 c. long, leaving umbilicus to right, one-half above, one-half below. Splenic artery size of index finger, could introduce thumb into splenic vein. Ligation with phenicated silk; little blood lost; suture. Complete recovery.

Remarks: First successful operation in Italy. Spleen normal in color, quintuple in size. Removing 200 grammes of

blood it weighed 1.526 grammes; 26 c. long, 16½ c. wide, 7 c. thick. There occurred, forty hours after the operation, small dropping of blood from vulva; one year later blood almost normal.

CASE II.—Operator, Assaky; date, 1888; time of operation, one and one-quarter hours. Patient, female, aged twenty-six years; married at eighteen years; several children.

Diagnosis: Abscess of breast after first delivery, œdema of limbs after last. Malarial fever at twelve years, inflated abdomen after the disease. Tumor in the splenic region, constitution weak, mucous surfaces pallid. Both pupils dilated, temperature normal, no œdema except varicose veins. Mammæ voluminous. Intestinal functions normal. Linea alba pigmented, superficial veins dilated.

Operation: Incision on the median line from the umbilicus to near pubis, 12 c. long; hæmostasis. Incision, prolonged above the umbilicus 4 c.; catgut, chloride of zinc, cautery. There were 18 superficial ligatures, 14 more profound, 9 in the peritoneum. Recovery.

Remarks: Blood, 5,000,000 corpuscles in c.m. White to red in proportion 3 to 100; weight, 2410 grammes; size, 35 c. long, 42 c. wide; measure on concave side, 28 c. long, 17 c. wide, 7 c., 1½ c., 5½ c. thick.

CASE III.—Operator, Ceci; date, 1893; time of operation, one-half hour. Patient, female, aged thirteen years.

Diagnosis: Tumefaction of the stomach from infancy. At three years put on milk diet until the stomach became normal. The malady began two years back, attributed to a fall. She became pale, gums bled easily. Ossa normal, muscles weak, but little developed, adipose tissue thin, aspect meagre, senses normal. Abdominal tumor hard, smooth, roundish, oblique. Lower temperature over tumor.

Operation: Chloroform anæsthetic, median incision to left of umbilicus 28 c. from xiphoid appendix to three fingers of pubis; a second 14 c. transverse and oblique parallel to left costal arch; distance 6 c.; ligation of splenic artery, excision of much splenic substance so as not to injure stomach; catgut

ligature. Liver normal. That part of the capsule that was in contact with the stomach was left intact so as to avoid hemorrhage. Recovery.

Remarks: Weight of spleen without blood 1300 gr., 25 c. long, 15 c. wide, 6 c. thick. Blood before operation: red corpuscles 3,592,000, white 15,000, hæmoglobin 60. Blood after operation: red 4,250,000, white 15,000, hæmoglobin 65. Removal of pus after operation by puncture, hemorrhage, fever, 300 gr. purulent fluid removed from splenic cavity.

Case IV.—Operator, Lindfors; date, 1892. Patient, female, aged twenty years; peasant.

Diagnosis: Constitution weak, temperament lymphatic, five years before noticed increase of abdomen, especially of left side. Very round, acute pain, left part of abdomen occupied by tumor. Elastic, ovoid, very movable, 29 to 17 c.; circumference 25 c. Blood, 1 white to 250 red.

Operation: Chloroform, afterward ether. Incision 18 c. above umbilicus from right to left, a vertical incision from upper angle 6 c. to left side of angle. Abdominal walls divided successfully, hæmostasis with care before opening peritoneum. Single adhesion to omentum. Omentum, etc., retained by sterilized gauze. Ligation of pedicle with aseptic silk in six divisions. Almost no loss of blood; suture completed. Recovery.

Remarks: Treatment four weeks previous to operation fortifying and stimulating. Weight without blood, 116 g.; length 25 c., breadth 15 c., thickness 7 c. Histological examination: hypertrophy of fibrous element and diminution of pulp. Result: augmentation of white globules, diminution of red, especially hæmoglobin. No augmentation of thyroid and lymphatic glands.

Case V.—Operator, Hartman; date, 1894. Patient, female, aged forty years; two miscarriages; no children.

Diagnosis: In iliac fossa and ascending to within one-half inch of costal arch, tumor flaccid, movable transversely from one fossa to the other. No area of dulness of normal position of spleen. Swelling of abdomen, continual vomiting. Was

suddenly seized with meteorism. Headache of frontal type and so severe as to prevent sleep.

Operation : A sub-umbilical incision was made in median line, no attachment of spleen was found except by pedicle. It was lamelliform. The splenic artery was ligated, and then three other threads were passed, the last one constricting the whole pedicle *en masse.* The distal end of the pedicle was then tied near the spleen and cut between the last ligature and the others.

Remarks : April 7th, hæmoglobin 108, leucocytes 1 p. to 150, red 4,850,000 ; April 9th, hæmoglobin 90, leucocytes 1 p. to 137, red 4,400,000 ; May 20th, hæmoglobin 105, leucocytes 1 p. to 200.

The fortunate operators of these were Franzolini, Assaky, Ceci, Lindfors, and Hartman. That you may form some idea of the hæmostasis demanded in these cases, chloride of zinc, actual cautery, and forty-one ligatures were required to control the hemorrhage, from the pedicle alone. In Assaky's case there were no adhesions.

In forming the second class, that of malarial hypertrophy, I accept the diagnosis as given in the report, and if it is not expressed I have relied upon the history and symptomatology. In none of these cases was the plasmodium malariæ found. Under this head we have 40 cases, 24 recoveries, and 16 deaths. To these I wish to add my own case, which I trust I may be permitted to report in detail :

Mrs. J. S., aged thirty-three years ; housewife; multipara ; native of Tennessee ; family history good ; has suffered occasionally with menorrhagia, but more recently from amenorrhœa. She had malarial fever when twelve years of age; for the last three years she has lived in the western portion of the State on the banks of the Mississippi. She has suffered during this time with frequent attacks of intermittent malaria. In July, 1895, she had remittent fever lasting five weeks, from which she apparently recovered. About August 1st, last, she suffered from acute pain in the left side. A tumor was then discovered in that region about the size of the fist. The tumor

grew rapidly, and on October 8th she consulted me. Physical examination revealed a smooth, elastic, movable tumor, filling the left lateral region of the abdomen. Edges sharp and notched. It frequently changed its form; at times it appeared flat and smooth; again, it would rise up into a sharp ridge extending from ribs to symphysis pubis. There was absolute dulness over the tumor. Vaginal examination revealed the uterus forward, the pelvis filled with a smooth, hard mass, which upon change disappeared from the pelvis and occupied the left iliac fossa. She suffered with paroxysmal pain, a sense of weight and dragging in the left side, flatulency, nausea, and occasional vomiting. There was some emaciation and slight anæmia. There was no adhesion, ascites, vertigo, or insomnia. The blood examination was conducted by Prof. W. M. L. Coplin in the laboratories of Vanderbilt University, and appears as follows: Blood examination, case of Mrs. S., by Prof. Coplin: Date of examination, October 9, 1895; number of red corpuscles, 3,800,000; number of white corpuscles, 31,000; ratio, 1 to 123; percentage of hæmoglobin, 65. The red cells normal in configuration; no large or irregular cells; leucocytes almost exclusively of the large polynuclear type, only a few mononuclear white cells being present.

The diagnosis was malarial hypertrophy of the spleen, and after due preparation the abdomen was opened by lateral incision at outer border of left rectus. The incision was about six inches long. The spleen was found displaced and free from adhesions; its pedicle was secured by interlocking ligatures. The pedicle was severed close to the organ. As additional security against hemorrhage ligatures *en masse* were employed, also individual deligature of splenic artery. After removal of the spleen bleeding from the abdominal incision, which before was insignificant, now became very profuse and required several ligatures. The peritoneum was closed by separate silk sutures, the abdominal wall coapted by the usual interrupted silk-worm-gut sutures. The post-operative history is a very stormy one. For the first twenty-four hours after operation the be-

havior of the patient was very satisfactory; pulse 122; temperature 100°; respiration normal. The stomach quiet; urine secreted 9 ounces. During the second day patient restless; occasional vomiting; pulse 130; temperature 99°; respiration 28; abdomen flat; urine secreted, 16 ounces. On the third day the patient became very weak; extremities cold; pulse 150; temperature 100°; respiration rapid, 40, very shallow, with attacks of dyspnœa. During the twenty-four hours of the third day, only two ounces of urine secreted. Some pain in the lumbar region, slight tympanitic distention of the abdomen. This was very peculiar, being entirely subumbilical. On the fourth day patient very dull, sleepy, and slightly delirious; pulse improved, 120; temperature 100°; respiration 36, but no dyspnœa. Complained of severe pain in right side of abdomen and chest, depression, and vertigo. Urine secreted 12 ounces. Fifth day general condition much improved; pulse 92 and full; temperature normal; respiration still rapid. Peculiar subumbilical sausage tympany marked. Bowels acted copiously. Urine secreted, 30 ounces in twenty-four hours.

During the succeeding ten days patient suffered intensely with pain in left hypochondriac region and adjacent area of the thorax; uncontrollable diarrhœa, drowsiness, and occasional vomiting. Tongue became dry and red, sores appeared, and rapid emaciation occurred, picturing in every way the closing scene of typhoid fever.

On the fourteenth and fifteenth days she passed a number of large, bloody, and fluid stools; her pulse and temperature remained the same. The pain was relieved, tympany subsided and the brain symptoms disappeared. She expressed hersel as much better. Marked and rapid improvement in general condition followed. All functions became normal.

One month after the operation she was out of bed and looked ruddy and well, and was in infinitely better condition than before the operation. Aseptic union of the wound throughout. Seven months later the patient is in good health.

The blood of Mrs. S. was examined by Professor Coplin, and gave the following results:

October 9, 1895. Red corpuscles, 3,600,000; white corpuscles, 31,000; percentage of hæmoglobin, 65. The red cells normal in configuration, no large or irregular cells. The leucocytes are almost exclusively of the large polynuclear type, only a few mononuclear white cells being present.

October 13th. Operation.

19th. Red corpuscles, 3,000,000; white corpuscles, 6000. percentage of hæmoglobin, 60. Red cells somewhat irregular; a few microcytes and megalocytes and many of the normal-sized red cells pale, a few almost phantom. While the leucocytes are almost diminished in number their character is also changed; instead of the large polynuclear cell of the previous examination, the white cells are mostly of the lymphocyte type.

November 2d. Red corpuscles, 2,500,000; white corpuscles, 16,000; percentage of hæmoglobin, 50. Red cells more nearly normal in type; very few irregular cells. Leucocytes mostly of the large polynuclear type, and very much as they appeared before the operation.

9th. Red corpuscles, 2,640,000; white corpuscles, 18,000; percentage of hæmoglobin, 50. Same corpuscular condition to be noted as that recorded in examination of November 2d.

The third series of cases which I find it difficult to classify, for want of a better name, I designate as simple hypertrophy. In these cases there is no associate blood diseases, yet I would suggest that sufficient attention has not been given to the condition of the other viscera, especially the pancreas and the liver. In an investigation upon anatomic conditions alone we could assume that splenic hypertrophy would follow disease obstructing circulation in this organ. In a careful analysis of the recorded cases of simple hypertrophy, I can find allusion to the liver in only three. I question if this organ is not entirely overlooked in the diagnosis. In seeking to discover a cause for this so-called hypertrophy we note that the organ is found to be "displaced," "wandering," "movable," "ectopic." At once the question arises: Is this displacement the result of the increased weight, traction, and elongation of the pedicle, or have we, in some instances, a

congenitally long pedicle whose vessels are constricted by the mobility and changed position of the spleen, leading to pulp engorgement? Of 59 cases of splenectomy for simple hypertrophy, 34 recovered, 25 died, a mortality of 42 per cent.; 9 of the deaths were due to hemorrhage, a preventable accident. With due precaution the mortality should have been 28 per cent.

Neoplasms form the fourth group: As primary growths they are rarely met with in the spleen. I can collect only five cases of sarcoma, which may be thus tabulated: Billroth, female, aged forty-three years, primary sarcoma, recovery; Wagner, female, aged twenty-seven years, primary sarcoma, recovery; Helmouth, child, primary sarcoma, death; Frisch, female, aged thirty-one years, primary sarcoma, death; Flothman, male, aged forty-four years, primary sarcoma of mesentery and spleen, death.

In all of these cases the diagnosis was corroborated by microscopic examination, and cannot be questioned. We note that four of the patients were in middle life, only one a child. Billroth, in recording his case, remarks upon the infrequency of primary sarcoma in the spleen.

The next pathologic condition demanding splenectomy is echinococcal cystoma, of which there are six cases, four recoveries, and two death. Simple cystoma of the spleen has been met with by three operators, Péan, Wells, and Gussenbough. Péan's and Wells's patients were women. The tumor was diagnosticated as ovarian. Gussenbough's patient was a boy of fourteen years. All these cases recovered.

In 1851 Viard is reported to have removed three displaced degenerate and dried-out spleens; just what that pathology is I leave you to imagine. All these cases recovered and were the second series on record. Of primary abscess and sloughing of the spleen, not due to traumatism, there are three cases with three recoveries. I found throughout the literature of this subject, one case each of syphilis, primary tuberculosis, and fibroid degeneration of the spleen. Death occurred in each case.

Two cases of floating spleen, normal in size, are reported; one death and one recovery followed their removal.

One of the most frequent conditions demanding splenectomy is injuries to the organ by contusions or stab-wound. After wounds of the abdominal wall, the spleen often herniates. The protruding part quickly becomes gangrenous. Under the head of wounds we have 43 cases, 32 recoveries, and 11 deaths. While these cases appear in literature as splenectomies, in eight of these the protruding part was removed; all of this number recovered.

Clinical memoranda are not always as clear as one would like upon the question of diagnosis. In many records the reporters are most artful in their phraseology, not declaring a diagnosis, nor confessing error, nor ignorance. In a summary of cases extending over a period of three and a half centuries it is a little difficult to gather exact data. I find only 99 cases recorded sufficiently in detail from which we may draw conclusions as to a diagnosis. Of this number it appears that a diagnosis of splenic enlargement was fully determined in only 57 cases. In 24 cases it is questionable if a diagnosis was made, in the remaining 19 cases there was absolute error of diagnosis. I can gather only fifteen records of blood examination. In these the investigator seems to confine his work to estimating the relation of white and red corpuscles, without considering the character of the corpuscles or the amount of hæmoglobin. From this table we note that in three cases there was decided increase in white corpuscles after operation, with a diminution of the red. In three other cases there was a gradual decrease in the number of white, while the red remained as before operation. These data in part accord with the conclusion of Vulpius, who claims that after the removal of the spleen there is a leucocytosis, a temporary increase of white corpuscles.

It is held by physiologists that the spleen in the adult in conjunction with the red-marrow of the bones plays an important *rôle* in the formation of red blood-cells, yet in the few cases analyzed in which an accurate account of the blood was

made before and after the operation, in two there was slight increase in the number of red cells, in two others there was decided diminution. Concerning the function of the spleen with relation to the red blood-cells, Emelianoff, in a recent number of the *Archives of Biology of St. Petersburg*, asserts that in the fœtus the function of the spleen is the production of red cells, which function at birth is transferred to the marrow of the long bones. The change in function takes place gradually; that is, through several weeks. But it is very doubtful if the organ in the adult, even after copious hemorrhage, takes part in the formation of red cells. One never sees red cells in the process of formation in the spleen. "It is very probable," says the same authority, "that the spleen takes an active part in the formation of hæmoglobin." Vault and Jolyet, speaking from experiments upon animals, say that the removal of that organ is never productive of any derangement, and therefore its function can be assumed by other organs, probably by the lymphoid glands. A careful examination of all cases recorded fails to yield a single case in which there was lymphatic enlargement following splenectomy. Upon like grounds I am prepared to accept the conclusion of Vulpius, which is, "The thyroid gland is not vicarious to the spleen." Exactly what division of extra labor is made among the various glands after removal of the spleen one cannot say; yet a few autopsies held upon patients from one to three years after they have been deprived of their spleens, give us this information: accessory spleens, which at the time of operation were too small to attract attention, have grown to the size of a walnut. Furthermore, fragments of the splenic tissue left upon the stomach and other viscera grew and preserved their normal characteristics. Schiff and Heitzen have endeavored to point out relationship between the pancreatic digestion and the function of the spleen. The pancreas of an animal deprived of its spleen loses its digestive properties. In contemplating splenectomies the surgeon must now feel he is sacrificing two organs. Since, however, beyond the cavil of the physiologist, one can do fairly well without the spleen,

we are not likely to be deterred by their experiments. How well one's functions can be conducted without the spleen is excellently illustrated in Tantoni's case in 1700 (*Morgani, De Sedibus et Caus. Morb.* 111 ep., lxv.), in which the spleen was removed from a child. She grew to womanhood and bore children. It does not appear in this case that the splenectomy in any way influenced the anatomic and physiologic development of the endometrium, or Johnson's lymphoid structure; yet ample evidence is obtainable that endometrial diseases frequently occur in the history of splenic disease.

The symptoms of splenic hypertrophy are divided into two classes: first constant, and second occasional. Of the first we have progressively enlarging abdomen, pain, weight, and dragging sensation, anorexia, nausea, and frequently most obstinate vomiting, vertigo, insomnia, dyspnœa, emaciation, and anæmia. The occasional symptoms are hæmaturia, epistaxis, and hæmatemesis. I wish in this connection to remark upon the constancy of insomnia as a symptom. In almost every detailed report it is mentioned, and may be explained, I think, by the existing anæmia.

I do not think it necessary to discuss here the physical diagnosis of splenic tumors and hypertrophy.

Our acquaintance with intra-abdominal disorders is so much more intimate than formerly that in the future errors in diagnosis will be quite the exception. There are two complications which occur in the life-history of enlarged spleen deserving special mention: torsion of the pedicle and ascites. I am able to gather altogether eight cases of torsion of the pedicles. To these, if it were proper, I would add a case reported by me in the *Medical News*, April, 1890, of splenic hypertrophy with torsion of the pedicle, diagnosticated as uterine fibroma with torsion of the pedicle. The woman died while preparations were being made for operation; the autopsy revealed the true nature of the case. Of the eight cases I reported all were women; six were multiparæ; two may have been, though were not so stated. In four cases symptoms of torsion became quite manifest after labor or abortion. The symptoms of rotation of

the spleen briefly stated are the following: Acute paroxysmal pain of the twisting character, more or less sharp; nausea, vomiting, frequently obstinate constipation, so much so as to suggest intestinal obstruction; sausage tympany; tumor enlarges rapidly, becomes hard, tense, and very tender. These symptoms remarkably simulate hemorrhagic pancreatitis.

The second complication to which I would call your attention is that of accumulation of ascitic fluid. It was present in eleven cases; nine of these patients died. Death was due to hemorrhage, no doubt, though it is not so stated. The splenic hypertrophy in these cases was associated with, if not due to, hepatic cirrhosis, and after removal of the spleen by reason of the obstruction offered to the portal circulation there were double causes for increased vascular tension. Therefore a patient presenting this complication is predisposed to hemorrhage, a fact that should have due weight in determining the propriety of an operation. The first operation done in America was performed by Alston. Subsequently there were 28 additional operations performed, resulting in 11 deaths and 17 recoveries. Our honored fellow, Prof. E. S. Lewis, of New Orleans, appears as the most successful American operator, he having removed the spleen in two cases of malarial hypertrophy. In one case the physical signs warranted the diagnosis of uterine fibroma. When the abdomen was opened he quickly discovered his error, but drew up the spleen, ligated its long pedicle, and removed it. The second case was correctly diagnosticated as an enlarged and displaced spleen. Both patients recovered.

Our honored President, Dr. Louis McLean Tiffany, kindly gives me the following notes of his case:

Mrs. ——, aged forty-five years, came into my care December, 1893, suffering from a tumor in the left side of the abdomen. It was freely movable from side to side, as well as up and down, but always extended six inches below the left ribs. When standing the tumor presented below the navel in the middle line; toward the linea alba the finger could be pressed underneath the tumor recognizing a more or less sharp border,

broken in two places by depressions which suggested that the tumor was an enlarged spleen. The history of the patient showed that she had suffered for years from irregular attacks of malarial fever, and that the tumor had grown for seven or eight years slowly. It was thought at first that the attacks of malarial fever were accompanied by pain in the tumor. At present not only is discomfort complained of, but inability to eat and digest food also. Examination of the blood showed slight relative increase in white blood-cells. The spleen was removed December 29, 1893. An incision sufficiently long was made from the umbilicus downward to the left of the linea alba, and from the umbilicus upward and outward as far as necessary. The spleen at once came into view with a long pedicle. The omentum was adherent to the under surface and was tied off in segments. The vessels entering the spleen at the hilum were separately uncovered and tied. Two small spleens not larger than walnuts were left. All went well, the patient recovered without trouble. Examination of the tumor showed that it was 25 c. long, 14½ c. wide, 7 c. thick, and weighed 11.000 gr. It was hard and inelastic; the capsule tense and much thickened. In places it was very opaque, apparently by fibrous deposit. On section it was of a dark-red color, nearly black; the pulp could easily be pressed out, leaving large and prominent trabeculæ, which crossed in all directions. Microscopic sections were stained with eosine and hæmatoxylon. They showed enlarged bloodvessels; the spaces between the trabeculæ contained large numbers of red corpuscles and a good many white ones. The sections looked like hemorrhagic infarctions; the walls of the bloodvessels were thickened and infiltrated with small round cells. The capsule was thickened and infiltrated similarly; the glomeruli were seen with difficulty. Trabeculæ were increased in size and number and infiltrated with round cells. There was much coloring-matter present, and there appeared to be a general increase in connective tissue throughout the whole organ. The appearance justified the diagnosis of subacute indurate splenitis. The blood was normal when the patient left the hospital.

AMERICAN OPERATORS.

Goodell, leukæmia, death; Markoe, simple hypertrophy, recovery; Miner, simple hypertrophy, death; Powell, wound and hernia, recovery; Alston, wound and hernia, recovery; Myers, malarial hypertrophy, recovery; Markham, wound and hernia, recovery; Markoe, malarial hypertrophy, recovery; Strong, leukæmia, death; Willien, wound, death; McGraw, malarial hypertrophy, recovery; McGraw, simple hypertrophy, death; Nilsen, simple hypertrophy, recovery; Deaver, traumatism, death; Simmons, malarial hypertrophy, death; Roddick, traumatism, death; McCann, simple hypertrophy, recovery; Conklin, simple hypertrophy with torsion, recovery; Bond, simple hypertrophy with torsion, death; Pane, malarial hypertrophy, recovery; Bark, leukæmia, death; Saurason, malarial hypertrophy, recovery; Penrose, simple hypertrophy, death; Yourkin, simple hypertrophy, recovery; Stephen, simple hypertrophy, recovery; Lewis, malarial hypertrophy, recovery; Tiffany, malarial hypertrophy, recovery; Douglas, malarial hypertrophy, recovery; total number 29, deaths 11, recoveries 18.

DISCUSSION.

Dr. George Ben Johnston, of Richmond, Va.—Mr. President: I have listened with profound interest to Dr. Douglas's able paper on the subject of splenectomy, and I regret very much that I did not hear it six weeks ago. If I had, I should have added a case of splenectomy to the list which he has already enumerated. The case which involved manipulation of the spleen was this: In June of this year there consulted me a young woman from the neighboring town of West Point. She is twenty-six years of age, fairly well nourished, having had no serious illnesses, whose functions are all reasonably well performed; but presented a history of several attacks of malarial fever. The reason for her consulting me was the presence in the abdomen of

a tumor. Examination of the abdomen revealed a tumor in the left iliac fossa, which was perhaps twice as large as the normal spleen and firmly adherent to the pelvic organs by a pedicle as broad as two fingers, which could be easily made out by deep pressure. The tumor was movable from side to side, but could not be displaced upward. When upward pressure upon it was made the uterus was lifted up out of the pelvis, and when pressure was made upward the pedicle was rendered tense and was very readily discernible. The diagnosis was uterine fibroid with long pedicle, and, in view of the fact that the young woman had recently had an attack of ague, she was sent to another part of the State to recuperate in order that she might be in a better condition for operation. She returned the first week in October for operation, and an operation which I thought would be either the removal of the fibroid with the long pedicle, or perhaps a hysterectomy. The ordinary incision was made and the tumor delivered, and when it was exposed it was discovered to be a case in which the omentum was adherent to it throughout its convex surface. This seems a little peculiar if the tumor was a fibroid. When the adhesions were separated, however, it at once became apparent that I was dealing with the spleen, not with a fibroid tumor. The spleen, after all of the adhesions were liberated, was found somewhat enlarged, as large as you would ordinarily see it in chronic malarial poisoning; but otherwise it was apparently healthy, and it was determined that no attempt should be made to excise it, but that in view of the fact that its surface had been somewhat denuded of its epithelial layer, if it was restored to its normal anatomical position it might adhere there, and thus obviate the necessity of splenectomy. After liberating the pedicle by which it was attached to the uterus low down and dressing the wound in the ordinary manner, the patient made a successful recovery without any complication. The precaution was taken, however, to place a large pad below the spleen and encompass it in a binder, in order that it might retain the spleen as far as possible in its proper position. The patient remained in bed four weeks, and on last Saturday was allowed to get up. Up to this time there has been no displacement of the organ, and I still cherish the hope that there will be no further displacement. It was, however, stated to the patient and to her father, who is a physician, that in the event the spleen became

displaced a splenectomy would be undertaken for its relief. I confess at the time this operation was performed that I was not familiar with the literature of splenectomy, and I had thought that removal of the spleen was a much more fatal operation than Dr. Douglas has indicated in his paper. So I say, if I had heard this paper six weeks ago I should have removed the spleen rather than made an attempt to replace it, with the possibility of having to perform a secondary section for the removal of this organ later on.

Dr. I. S. Stone, of Washington, D. C.—The diagnosis of floating spleen is not easy, although operation for the removal of such a spleen is comparatively safe. Yet I doubt if splenectomy is often indicated. Two years ago I had a woman under my care who had a cystic ovary and floating spleen. The floating spleen was diagnosed as a fibroid with a long pedicle. Operation showed it to be a floating spleen, and I did not hesitate to confess my error. The question arose as to whether the spleen should be removed. The patient had no symptoms attributable in any way to floating spleen. I removed the ovary, which was as large as a small orange, and the woman got well. I recall two cases of floating spleen where one patient died and the other got well. If my case had been operated upon, the spleen removed, and the patient had died, the evidence would be opposed to operation in such a case. It seems to me that we should be guided by the symptoms in any case of floating spleen where the spleen is not much enlarged, as the spleen in the case to which I refer manifested no symptoms of enlargement. I examined the patient in June, and it was nearly two years since operation, and yet no enlargement. I should say we ought to let these cases alone in view of the statistics which Dr. Douglas has presented to-day.

Dr. John A. Wyeth, of New York.—I wish to put on record, in connection with Dr. Douglas's excellent paper, one of my cases. Three years ago I operated on a man for enlarged spleen by the ordinary method, removing the organ, which weighed five pounds. I tied off the pedicle, but there were one or two arteries that did not enter the spleen at the hilum, and one of these broke during the operation, which I secured then with a long clamp, intending to replace the clamp with a ligature. On account of the patient's bad condition I was unable to apply the ligature and left the clamp in place. The patient died on the

eighth day after operation. I was out of the city at the time, having left the patient in charge of a colleague.

The autopsy revealed carcinoma of the liver, which was not discovered before death. The greatly enlarged spleen overlapped the liver and rendered a study of its condition impossible.

Dr. Joseph Price, of Philadelphia.—We are indebted to Dr. Douglas for his careful and painstaking research, as not many of us would devote ourselves to a subject requiring so much labor and toil. He has alluded to 9 per cent. mortality of recorded cases due to hemorrhage. This gives us a fair idea of what the mortality must have been in the unrecorded cases. Hemorrhage probably was responsible for twice or thrice the mortality in the removal of the spleen, and this holds good throughout the mortality in abdominal surgery. Postponed operations are in a measure largely responsible for mortality. A. and B. see the case and counsel non-operative interference in the very class of cases in which the doctor has advised operation, until they are quite hopeless, and a third man is willing to give the patient a lingering chance for recovery. Errors in diagnosis are bound to be made. I might refer to one case in my own experience that quite filled the pelvic basin. It was impossible by altering the position of the patient to alter the pelvic fixation or fulness, the uterus being pushed far to the right. This was not a large cystoma, enlarged kidney or spleen. The history indicated its development from above, not from below. In one or two of these cases, one proved to be an enlarged spleen, the other a kidney. The incision was made rather high in order that I might go either way to complete my work satisfactorily. Both cases recovered. In another case the spleen was involved, and the operation was done in the presence of Dr. Agnew. After removing some laminated blood and the tissues commonly found in old aneurisms, I suggested to Dr. Agnew that I had an abdominal aneurism and had better stop. He agreed with me. It was more than a year after this that I learned the woman had died of some sarcomatous trouble, wholly independent of her spleen. It was discovered it was not the spleen, nor the aneurism. There seemed to be an aneurism in this case, and it was impossible without freeing extensive adhesions and exposing the bloodvessels to determine its precise nature. I make allusion here to a typhoid condition existing, and which may be the cause

of sepsis. There is no reason why in some cases this coincidence should not occur. I remember some years ago of removing a cystoma, and, some four or six days after operation, there being not a hitch in the convalescence up to that time, typhoid symptoms developed, and I made an effort to determine the presence or absence of sepsis, and failed. The patient ran through a typhoid course and recovered. I discovered a short time after her recovery that a typhoid patient had died in the house, had been removed, and that my patient occupied the same room.

The symptoms are not always either objective or subjective; they are not sufficient to say positively that many of these tumors are due to the spleen and nothing else.

Dr. Louis McLane Tiffany, of Baltimore.—The reader of the paper has kindly referred to a case of mine which has not yet been published, but which with this paper will be recorded. The patient was a white female, between forty and forty-five years of age. Her history showed long residence in a malarial district. She had had successive attacks of malarial fever, during which a tumor appeared below the left lower ribs, and disappeared after the malarial attack passed off. The tumor became persistent and painful, and a short time after a malarial attack had ceased she came under my care. At that time the tumor extended below the left ribs and beyond the middle line. The edge of the tumor was serrated and could be distinctly felt toward the linea alba, a diagnosis of enlarged spleen was made. The spleen was removed; there were extensive adhesions to the omentum, the omentum being tied and a portion taken away with the splenic tumor. There were found two small spleens about the size of marbles, which were left under the supposition that they might grow and be of use, not knowing what the spleen did, and, these two spleens not being in the way, we thought they might be useful just as a piece of thyroid gland is of use to prevent myxœdema. The pedicle was divided into several strands, the vessels tied individually, and a large vessel was found not entering the spleen at the proper place; but two and a half inches lower it was tied. The patient did well. I heard from her about three years afterward and she was still in excellent condition.

An examination of the blood and of the tumor was made, but was not as thorough as in the case which has been reported to-

day, which I suspect is one of the best-recorded cases of enlarged spleen in this country so far as the blood examination goes. The splenic tissue was nearly normal, with many trabeculæ running through it; there was little difference in number between the red and white blood-corpuscles.

The question of diagnosis is one of importance, and the spleen is not apt to be confounded with wandering kidney of the left side. It has not been my fortune to meet with a case of wandering kidney of the left side without the same being present on the right. So, when I find a tumor there, it is invariably my habit to look across the body to see whether the right kidney is movable. If it is not, then my opinion is directed toward a splenic tumor rather than an enlarged kidney. In the enlarged spleens that I have seen I have always been able to get my fingers under the edge of the tumor toward the middle line, and have recognized a depression which is normal in the spleen, so I have had no difficulty in reaching a diagnosis. Indeed, in the case here referred to, one of my reasons for eliminating enlargement of the kidney was the finding of this depression toward the middle line of the body.

The question of uncertainty of diagnosis has been spoken of by one of the Fellows, and perhaps the following case may accentuate the same. I operated for a tumor the nature of which I was ignorant of. The belly was much enlarged, and the tumor seemed to grow from under the left ribs. The spleen and kidney were both in my mind. I opened the abdomen by making a free median incision, and went through the posterior layer of the peritoneum, finding the tumor was behind it. The spleen was at the tip of the tumor in the pelvis. It could have been made out by rectal examination. I had not made a rectal examination. The spleen was normal in size. The tumor was retro-peritoneal, so I opened it freely and scooped out with two hands something that looked like a sponge. I did not make an examination of it —microscopic—for unfortunately the family objected strongly to my taking some of it away with me. The abdominal cavity was closed by a continuous suture, the back layer of the peritoneum being sutured to the anterior wall, leaving an opening for drainage. The patient recovered. The operation was done fifteen years ago. I do not yet know what kind of tumor it was I cured my patient of.

Dr. Ernest S. Lewis, of New Orleans.—I regret that I was unable to hear Dr. Douglas's paper. I have had two cases of splenectomy of which I kept no record. One was the case of a young lady who was brought to me suffering with a variety of sympathetic disturbances, the nature of which has not been discovered. I made an examination and found a tumor like an egg-plant in shape, down in the pelvis, which could be felt through Douglas's *cul-de-sac.* I took it to be an ovarian fibroid, although I had never seen an ovarian fibroid tumor. When I removed the tumor I found it was the spleen, contracted and rounded instead of being flattened. The pedicle was large, and I had no difficulty in ligating it on both sides. My incision was made below the umbilicus.

The second case was a woman in the Charity Hospital, who had suffered from chronic malaria for many years. The spleen was somewhat larger than normal. She informed me that it had been much larger than it was at this time. I attributed its location to its extreme weight, causing traction on its attachments. She was not suffering at the time, consequently I did not think the case required surgical interference. I simply made the diagnosis. I could get my hands underneath the spleen, feel it perfectly, and there was no question as to its nature. About two months afterward my attention was called to this woman by one of the students, and to my surprise I found a cystic tumor. I must say that if I had not made an examination before I would have been very much in doubt as to the nature of the cyst. I proposed operation, and had the woman transferred from the Charity Hospital to a private infirmary. As the spleen could be moved freely, I made my incision in the median line. I removed the tumor, had no difficulty in ligating the pedicle, and when I examined it I found that there had been hemorrhage underneath the peritoneum, and then a gradual increase of serum. I attributed the degeneration to the frequent manipulations by the medical students. The woman had come there during the winter session, so that many of the students had examined her, pressing upon and contusing the spleen, producing hemorrhage, which resulted in degeneration. I have met with many cases of dislocated spleen, but never thought of taking them out, as there were no symptoms justifying operation. In these two cases I made a mistake: in one case mistaking it for an ovarian tumor, although

I had never seen a fibroid tumor of the ovary; in the other case the spleen had undergone cystic degeneration. Both cases recovered.

Dr. A. M. Cartledge, of Louisville.—I wish to report a case in order to prove how necessary it is in doubtful cases to examine all the organs of the abdomen before making the diagnosis. A year since in our city a gentleman gave a history of having a tumor of the left side, low down, occupying the pelvis. He thought that this tumor had existed ever since he was twelve years old. At the time I examined him he was about thirty-five years of age. The growth was characterized by periodical attacks of pain, and finally it was the cause of so much discomfort to him that he made up his mind to consult a physician. There was also a fairly circumscribed peritoneal inflammation. The diagnosis of this case was very obscure on account of the shape of the tumor and its more or less fixation. I could not outline the usual notch which we find along the side of the spleen. On one occasion I exhibited the gentleman to a local medical society in my city, and twenty-three expert diagnosticians examined the man, and the question arose as to whether it was an enlarged kidney or an enlarged spleen. Some of the gentlemen thought it was the spleen, others the kidney. I told them that by the next meeting I would see what it was. The man gave his consent to be operated upon, and two or three days later an operation was done. In this case it was the man's liver situated in the position I have described. There was an absence of normal liver dulness. I mention this case to illustrate the importance of examining all of the abdominal organs in making a diagnosis.

Dr. Douglas (closing the discussion).—I wish first to thank the Fellows of the Association for their liberal discussion of my paper. They have devoted more time to it than it deserved. I would like to say that several gentlemen have reported splenectomies to me that did not appear in the published reports. I would like to get the statistics as fully as I can, and would request the Fellows of this Association to furnish me with detailed reports of their cases, particularly as to the examination of the blood.

There is one point that was not properly discussed in the paper, namely, the technique of the operation. In five cases

where the pancreas had been included in the ligature, the patients died from hemorrhage. In looking for cause of death after splenectomy I found intestinal obstruction from rotation of the stomach and subsequent peritoneal inflammation following it. A probable cause of this is embracing the entire pedicle close up to the stomach.

MANAGEMENT OF CASES WHICH HAVE RECOVERED FROM APPENDICEAL ABSCESS IN WHICH THE APPENDIX WAS NOT REMOVED.

By John D. S. Davis, M.D.,
Birmingham, Ala.

The practice of dealing with appendiceal abscess by simply evacuating the pus and draining the cavity thoroughly, without any very extensive search or the breaking up of adhesions, in order to find the appendix, has been adopted by a number of operators for some time. More recently some surgeons have advocated, in all cases, that the operation should be made complete—that all adhesions should be freed and the appendix removed. One leading abdominal surgeon, who has, perhaps, done more work in pelvic surgery than any other man in this country, has advocated this plan of treatment in most vigorous terms. Evidently he has been led to take this position from his experience with tubal and ovarian abscesses. It must be remembered, however, in these cases that the cause of infection is very different from that in an appendiceal abscess. In a large proportion of cases of pus in the tubes and ovaries, gonorrhœa has been an important factor in its production. Such pus is not so septic and is not calculated to give rise to so dangerous a general inflammation as the infection from an appendicitis or an appendiceal abscess. It is a notable fact that a ruptured tube or ovary will usually be followed by a circumscribed inflammation. It is the exception that a fatal general peritonitis results from such an accident. Of course, when the pus is due entirely to puerperal infection and where it has existed only a short time, the condition is different and

a general inflammation will result. However, a pus-tube due to this cause, which has existed for a long time, becomes less and less infectious. The pus has been shown by microscopical examination in many cases of this sort to be almost sterile. It is easily understood how such a fluid might escape into the general cavity without causing great harm if promptly washed out. On the other hand, an appendiceal abscess is due to the most infectious germs, and a small quantity of pus from such an abscess will usually cause a serious general inflammation. The most fatal forms of peritonitis are due to a ruptured appendiceal abscess. In fact, but few cases are saved where such an abscess ruptures into the general cavity. So it will not do to use the argument which will apply to an abscess from the tubes and ovaries for a similar condition which arises from the appendix.

An operation on an appendiceal abscess is usually one of the simplest procedures, and it is attended with almost no danger. Where the inflammation is circumscribed and the drainage is thorough nearly all cases recover. Patients suffer no shock from such an operation, and the temperature becomes normal or nearly normal at once, and the condition is one of convalescence almost immediately after the operation. The records of operations upon appendiceal abscess show that the great majority of cases are cured after evacuation and complete drainage. Recurrence of the disease in such cases is the exception. The appendix in a large proportion of cases, having ruptured before the abscess-formation, is completely drained through the abscess and permanently cured. In others the appendix is destroyed by the inflammation, and there is nothing left of it when the abscess is operated on. An extensive search for the appendix is liable to break up adhesions and allow the escape of septic fluid into the general cavity. Thus a very simple condition may be converted into one of the most serious that could happen to the peritoneal cavity. Surely such a risk should not be hazarded when it is so easily avoided. Even if life is saved after such an operation, the patient will have all of the annoying

symptoms, such as thirst, pain, restlessness, etc., that are noted in cases of abdominal section, and these are not encountered after operating on an abscess in the other and simpler way. It is well enough to search for the appendix by gentle manipulation, and if it is found without any great difficulty it should be removed. It is not even necessary to use a ligature if there is any difficulty in applying it, as the opening will be into the abscess cavity and do no harm. Should there be any bleeding from its removal, the packing of gauze would control it. As stated, after such operations there will be a small percentage of cases of recurrent appendicitis. Should a patient be lost from such an attack the surgeon is liable to be criticised and to be blamed for not having done a complete operation at the time the abscess was opened. Certainly he will be criticised if it is the prevailing opinion of leading operators that a radical operation should be done in every case, and I desire to emphasize the great error of such teaching and to advocate the simpler plan of management. There cannot be much need of breaking up the adhesions, for they give way in a short time after the abscess is relieved. They do not remain permanent, as has been claimed by a number of surgeons. I have seen such cases where you could not tell there had ever been an abscess. In breaking up these adhesions, in addition to the danger already mentioned, you prepare a favorable condition for fresh adhesions, with the possibility of the bowel being fastened in a position that will produce pain and often obstruction. There are cases of abscess in which it is impossible to evacuate the pus extraperitoneally, but in such cases you can so completely wall off the general cavity while the pus is being evacuated that there will be no possible escape of the fluid into the cavity. After the abscess is thoroughly cleaned out, gauze packed into the abscess cavity and between the abscess and abdominal wall will completely shut it off, and the chances for recovery will be good in such cases. Still the gravity of such an operation is much greater than that of the operation on an abscess which has become attached to the abdominal wall. In the

cases where there is a small collection of pus around the appendix, and in case of early operation for such a condition, it is all right to remove the appendix and pack gauze around the field of the operation. These are very different cases from those already referred to.

We are now prepared to speak more particularly along the line indicated by the title of this paper. Of the large number of operations which my brother and I have done for appendiceal abscesses, in which we have pursued the plan already outlined, we have only had six cases of recurrence. In one case there was a recurrent abscess three times; in another, twice. Patients should be informed that recovery is complete in the great majority of these cases, but that there are some recurrences, and, should there be a return of the disease or should there continue pain for some time after the patient is able to be up, the appendix ought to be removed. Indeed, a patient should be thoroughly impressed with the importance of not going on without another operation should there be discomfort in the region of the appendix. That would show conclusively that the appendix had not been cured and that there is liable to be another attack, which may cause the death of the patient. It should be forcibly emphasized, should there be another attack of appendicitis, that an operation should be done within the first twelve hours after the attack. It should be explained fully that if such an operation is not done within the first twelve hours that a general inflammation may be established which cannot be relieved by surgery. In order to be saved this risk an operation should be promptly done even though the attack is very slight. While the patient might go through several attacks without a fatal result, a recurrence, after the abscess has been once evacuated, would show there is still disease in the appendix, and that it cannot be relieved except by the removal of the organ or by another abscess which might cause the death of the patient. By this plan there would be risk of losing some cases from a recurrent attack, but the danger is not to be compared to the number of deaths which would occur by the general adoption of the

radical operation which is being urged by some of our leading surgeons.

My brother, in a discussion before the American Association of Obstetricians and Gynecologists in Toronto, last year, following Drs. Robert T. Morris, of New York City, and Joseph Price, of Philadelphia, spoke as follows, and fully expressed my views along this line :

" In recommending the breaking up of adhesions and searching for the appendix in cases of appendiceal abscess, I think Dr. Morris and Dr. Price have advocated a dangerous practice. They have recommended a line of procedure, which, if carried into effect, will cause many deaths. While this practice may be followed with some success in careful and skilful hands, in the majority of cases it would be a dangerous procedure. I can conceive of nothing more dangerous than allowing the smallest quantity of this offensive septic pus to escape into the abdomen. In the last year, by gentle manipulation and treatment of these abscesses, I have had two secondary abscesses produced by the escape of pus into the abdomen, and the patients came near dying. If you do not find the appendix by very gentle manipulation, you had better let it alone, and simply do a life-saving operation. When the abscess heals the intestine is largely freed from adhesions. There is no use in tying off the appendix in a large proportion of cases, as it is destroyed by the inflammatory process. An operation should be resorted to, if necessary, after recovery from the abscess. In cases of appendicitis on which we can operate early before the formation of an abscess, we should do an ideal operation : remove the appendix, not tie off, and then bring up the bowel and sew the opening, as in a gunshot-wound of the intestine. Dr. Price has said that quite frequently the appendix is not found at the post-mortem examination. Of course, we cannot find it in some cases, for the reason that it has sloughed away. The inflammation is so destructive that it destroys everything in its reach, and it will not do to allow such pus to escape into the general cavity. In these cases we can do a life-saving operation, and then, later on, if necessary, remove

the appendix. I have had to do radical operations on two physicians in my city, some weeks after the evacuation of the abscess, as the appendix in both cases still gave trouble. These cases are usually relieved by the opening in the appendix and the drainage of the abscess. Some are cured by the abscess opening into the bowel and the appendix being drained or destroyed. In cases of appendicitis where the symptoms are severe and last more than a week and then disappear, an abscess has generally opened through the intestine, but such cases should not be used as argument against the operation. Some patients decline to subject themselves to the danger of a secondary operation for the removal of the appendix, but this should be insisted on if there be any evidence of recurrent inflammation, and the operation should be done within twelve hours of the attack."

DISCUSSION.

Dr. L. S. McMurtry, of Louisville.—Mr. President, surgical opinion has changed very materially from time to time in regard to the technique of this operation. At the beginning of the discussson I simply want to suggest one point: that where there seems to be great difference of opinion among surgeons in regard to the operation, when we reflect, there is not so much difference, after all; I think it will be found that every operator recognizes the importance of the life-saving operations referred to by the essayist. It is also recognized that it is harmful and imprudent to attempt to do an ideal operation where the condition of the patient will not permit it. I must dissent from the position of the essayist in generalizing too much upon this point. I believe here, as in every part of the abdominal cavity, where it is possible, a complete operation should be done. I got a very impressive lesson upon this point in a case which I operated upon about three years ago, when I had not seen many cases of appendicitis, and where I failed to remove the appendix, acting on the principle laid down by the essayist. In this case there were abscesses, one after another that could have been reached from the front easily, and where a secondary operation was required. I

am satisfied that all the work could have been done at the first operation. In my opinion, we ought to attempt to do a thorough and complete operation, separate the adhesions, restore the normal relations of the parts, remove the appendix, and do it in a clean, neat, surgical way. But there are conditions where in opening abscesses we find an appendix that has sloughed off, where we cannot, on account of the weak condition of the patient, make a thorough operation; we simply operate to save the patient's life at the time, doing a complete operation afterward.

Dr. Joseph Price, of Philadelphia.—This is an exceedingly interesting subject, and the number of cases throughout the country remains large, and will continue to grow in large numbers. The history of appendicitis is a rather extensive one, and we have not sufficient time at our disposal to devote to it. The comments made by Dr. McMurtry are quite fair, while the contributions to the subject by the two Drs. Davis are purely scientific and of an advanced nature. We differ, however, in some few points, not very vital, and I think it is more the manner in which we have been expressing ourselves than in any other particular, and that we do not quite understand each other. Dr. Davis, in alluding to the history of the disease, said we were prone at present to brush aside the work of our fathers in surgery, and I think it is a great mistake. For instance, a great many comments have been made of foreign bodies in the appendix and of the causal relation they bear to appendicitis. We cannot deny the fact that foreign bodies do exist and are now and then found in the appendix. A fecal concretion is a foreign body, and it may be as hard as a shoe button or a cathartic pill, and, with a puddle of fluid about it, ulceration and perforation may take place, followed by acute or chronic infection.

Dr. Davis has referred to acute infection, and has alluded to pus-tubes and ovarian abscesses as chronic cases. It is true that these are chronic cases, and these patients endure operations better than those where the infection is acute, as in cases of puerperal peritonitis or acute gonorrhœal peritonitis. But in all cases the treatment of the sepsis must be thorough and general, not partial, as in many cases of appendicitis.

In the discussion of appendicitis at Toronto one of the surgeons, a man of rare skill, gave us a brief history of acute, angry cases of appendicitis with alarming symptoms, nausea, vomiting,

enormous distention, in which cathartic measures usually fail. The patient has acute appendicitis and general peritonitis with obstruction. He goes on to tell us further of the condition of his patient; that he did the lateral operation, found an abscess or necroctic appendix with distended bowel. He removes the appendix, drains, and yet his patient sinks. It is just in that class of cases we differ. For instance, he tells us again that the post-mortem revealed general peritonitis with agglutination of the bowel with lymph. I would ask the question, Has he treated the peritonitis? Has the operation been completed? He tells us, then, that the conditions that were found post-mortem antedated his section. I ask the simple question, Did he treat those conditions? Did he attempt to save his patient? No. The operation was incomplete, and these cases will die. We have two operations for appendicitis, and I cannot get along without two operations for this disease. There is no question about it. In some cases of appendicitis we have resistance to the use of cathartics, salines, or whatever we may use. There may have been a free movement of the bowels the day before; but you incise the abscess, wash and drain it, and the patient gets well. You have some adhesions, it is true. This is the simple treatment of abscess, and it is just like lancing a boil. The patients get well. All of those cases of abscess in which you resort to incision and drainage, and in which there is an absence of bowel obstruction, peritonitis, distention, vomiting, and tympany, get well. Take an acute case with distention and vomiting, in which catharsis fails, in my opinion the central operation is the only procedure to resort to in order to save the patient. You may remove the appendix, if you like; you must relieve the obstruction, and it is the only prominent feature of the operation. The necrotic, perforated and suppurating appendix must be removed; you must free the bowel from adhesions, coiled up as it is sometimes in the form of a figure 8 or letter S, containing muddy fluid and filth. By this treatment many patients are saved.

Dr. Douglas has reported eight cases of general suppurative peritonitis with four recoveries. He ought to have saved one or two more, and I believe he thinks now he could have saved them. His report is an evidence of magnificent surgery with good results. He was willing to give his patients a chance for their lives, and saved four of them. I refer to chronic abscesses and the

obstructive forms of cases. I insist on the central operation with obstruction, and the lateral without obstruction.

I agree with the author of the paper in regard to the simple treatment of abscess about the head of the cæcum or the appendix, except he says that a general search should not be made for the appendix; nor do I think this is necessary in all cases. The appendix is usually to be found about the head of the cæcum, or on the right side, and exceptionally far to the left, and in seeking disease of the appendix on the right side and about the head of the cæcum, it does not favor the opening of the general peritoneal cavity. But it is vital and important to remove the necrotic and diseased appendix, and it can be easily done without much risk of contaminating the peritoneal cavity. I criticise the common methods of removing the appendix. The general surgical profession seek the necrotic appendix at the head of the cæcum, transfix it, and do as many operations for the removal of the appendix as we do for fibroids. Why not cut it out, the same as you would cut the rot out of an apple? You have abundance of material to deal with. It seems like petty surgery to me: a lack of deliberate surgical thought and reasoning; there should be moments of very close and deliberate thought in these cases as in all surgery.

I might say that numerous fistulæ and secondary operations are largely due to the fact that ligatures have been placed in the disorganized or necrotic stump of the appendix.

Dr. Willis F. Westmoreland, of Atlanta.—I have but a few words to say. Some of the members have not confined themselves to the subject. I believe that the title of the paper was on the "Management of Cases in which the Appendix was not Removed." It seems to me that the management of these cases resolves itself into a simple surgical principle. First, the question of infection, as to whether the appendix can be removed or the foreign body retained without increasing the danger of infection of the peritoneal cavity. Of course, in these cases the surgeon is going to take the easiest way out. If a patient has recovered from the acute attack and the abscess is walled off, either by omentum or other adhesions set up in the peritoneal cavity, he is not going to take the dangerous chances of having the surgeon dissect out the pyogenic tissue which may involve the opening of the peritoneal cavity. The easiest way in these cases is to

open up by incision in the line of safety and remove as much of the necrosed tissue as is present, and then deal with the abscess as you would deal with it in any other part of the body. Recognize the position of the lining membrane of this abscess. The pyogenic tissue which surrounds it may be limited to a thin membrane of adhesions between the intestines, or there may be adhesions to the omentum. Any surgeon who deals with an appendiceal abscess is going to attack it with the general surgical principle that he would in relieving an abscess in any other part of the body.

Dr. H. M. Nash, of Norfolk, Va.—Some years ago the only son of a friend of mine, of Norfolk, had appendicitis. The physician contented himself with opening the abscess in a very careful manner. Three or four months afterward there was a recurrence of the symptoms, and a secondary operation was decided upon. The patient died. A foreign body was found in the cavity at the autopsy. A few months after I had the case of a youth, about fourteen years of age, who had an appendiceal abscess, and, after the active symptoms had subsided somewhat, I opened the cavity by a free incision, and pus welled out. I had the other case in mind, and thought I would examine the cavity carefully. I did it, and found two foreign bodies which I could easily move about with a little manipulation. I got them out, and they proved to be two pieces of chewing gum which had been swallowed some months before. I am satisfied that in many cases where appendiceal abscesses are opened, it is wise to search carefully for foreign bodies, notwithstanding the opinions of many surgeons to the contrary. The first autopsy I saw in one of these cases was in 1858, where the appendix was gangrenous and contained a liver pill. The man had been in the habit of taking pills for constipation. If the foreign bodies are not removed in these cases we may have a recurrence of the appendiceal abscess.

Dr. A. M. Cartledge, of Louisville.—It is interesting to observe the methods of different surgeons in dealing with cases of appendiceal abscess. The paper is very timely because if the experience of other surgeons is in common with my own, they have been changing their minds as to the best method of dealing with this form of abscess. Since we commenced to operate on appendiceal abscess I have changed my front two or three times.

Several years ago the practice was advocated of opening appendiceal abscesses that were adherent to the parietial peritoneum in front and where the peritoneal cavity was shut off. The opening of these abscesses and not removing the appendix was considered incomplete surgery. I had many such cases, and some of them were left with mucous fistulæ. I believed the practice of simply incising an abscess was incomplete surgery, and that by leaving the appendix behind there was a greater liability to recurrence of the disease. This subject has so many applications, and we find cases presenting such different conditions, that a larger experience will give us a clearer idea of how to deal with these cases. The paper of Dr. Davis is very suggestive and one that calls for careful thought.

Within the last twelve months I have had two cases of appendicitis with abscess, in which there were circumscribed peritoneal inflammation and intestinal obstruction. In one case I opened the abscess, as the patient was so far gone, and simply irrigated. It looked as though the patient would surely die in forty-eight hours from bowel obstruction; but he got well. In another similar case I opened the abscess, cleansed and drained the cavity, after having separated the adhesions and removed the appendix, which I considered the best surgery, yet the paresis from separating the adhesions was very marked, and the patient died in sixty hours. Here were two cases, where one got well even from the condition of intestinal obstruction, while the other terminated fatally. One thing I would suggest as a means of dealing with these abscesses is this: that after opening the abscess I would pass the index finger down, for in many cases of large abscess you can feel the appendix at once. You feel the perforation at the bottom of the abscess cavity. After you find the perforation introduce the finger and determine the end of the appendix, lift the appendix up in the wound, and you can remove the necrotic portion without opening the peritoneal cavity. This might be termed a midway procedure. I would certainly rather remove a gangrenous appendix than to leave it. If I have a patient with a good pulse and the adhesions are not too numerous, I think it is better to search for the appendix, lift the head of the cæcum, separate the adhesions, and remove the appendix. But I am confident many cases will get well by simply incising the abscess and draining it without attempting to separate too many

adhesions. This last method is especially applicable when the patient is very weak and unable to stand prolonged surgical manipulation.

Dr. Richard Douglas, of Nashville.—I will state in a few words what I have to say by detailing clinically three cases upon which I recently operated, in two of which the appendix sloughed off, leaving a stump like a cypress snag, sticking out in the bottom of the wound. There was an immense accumulation of pus. The abscess cavity was washed out and packed with gauze. The patients recovered. The third case was one in which there was a gangrenous appendix which had not sloughed off. In this case the appendix was somewhat buried in adhesions. These adhesions were broken up, a piece of membrane being over the head of the cæcum, which was peeled off, the stump inverted, and the wound stitched over. In this case I had a fecal fistula as a result of my ideal surgery.

In conclusion, I would like to say that this midway procedure which Dr. Cartledge mentions of separating the adhesions and freeing the appendix will be found not to be a *midway plaisance* that they will get into by any means.

Dr. Cornelius Kollock, of Cheraw, S. C.—My experience is limited as compared with that of some of the surgeons present, but I must confess that I have been very much interested and instructed by the remarks that have been made by the different members. I have operated in the last ten years eighteen times for appendicitis. I was satisfied I was right in my diagnosis. I found the appendix diseased, and all of the cases got well. Many contend that they never find solid bodies in the appendix, unless it is a fecal concretion, or something of that kind. That is a mistake. I operated on a boy a year ago last August. He was about twelve years of age. Two physicians diagnosed the case as appendicitis, and I agreed with them. I cut down, found the appendix very much enlarged and diseased. I evacuated the appendiceal abscess, and on examining the appendix afterward we found something solid within it. We opened it and it contained two orange seeds. The mother of the boy stated that she was satisfied that the boy had not eaten any oranges the previous spring, and that there were none in the house, yet they were found in the appendix. The boy made a complete recovery, being able to get up and walk about in ten days.

Another case of appendicitis in which I operated three years ago, on opening the appendix I found a pearl shirt button. I was never disposed to credit the frequency of cases reported with grape-seed in the appendix. In all the cases on which I have operated for appendicitis, the two mentioned are the only ones in which I found anything but fecal concretion.

Dr. John A. Wyeth, of New York.—I fear that we are drifting from the subject under discussion, although the remarks that have been made are very interesting. Of the several kinds of appendiceal abscess, we are to confine our discussion to the form which the author of the paper had in view—in the ordinary abscess that Dr. Price dwelt upon, in which an abscess has been formed, with adhesions, and has attached itself to the abdominal wall either in front, or laterally, or posteriorly to the iliac fascia. In dealing with this form of abscess I do not believe there is a surgeon in this room who would endeavor, in the light of our present knowledge, to do anything further than to open the abscess and carefully drain it. When I say careful drainage, I mean to say it would be dangerous even in such a case to use a fountain syringe I have seen one death ensue from doing this. In this particular case the fountain syringe was held by an assistant two feet above the wound, and under the pressure the adhesions gave way, and almost immediately the patient went into collapse. I would not dare to dissect a good-sized appendiceal abscess and break up extensive adhesions around the appendix.

There are other kinds of abscesses which I have met, with firm adhesions, which have broken into the bladder or into the rectum. I have opened a number of abscesses that have broken into the rectum.

There is a form of abscess which does not attach itself to anything except the *caput coli*, or a loop of small intestine, or of contiguous mesentery, with no adhesions to the abdominal wall, when by careful dissection, guarding the peritoneal cavity from infection by sterilized pads, it may be dissected out, but when of large size it is my practice to wall the abscess off with iodoform-gauze packing and wait for forty-eight to seventy-two hours for adhesions, and then open and drain.

Dr. Henry O. Marcy, of Boston.—The paper of Dr. Davis is an interesting one, and in the discussion which has thus far taken place it seems we have dealt with other forms of abscess

than those mentioned in the paper. In cases of appendiceal abscess, where we have extensive adhesions, we should content ourselves with opening the abscess and draining the cavity. But we have cases in which there is intestinal obstruction; they are entirely different, and it is imperative that we should operate for the relief of this condition. I wish more especially to speak of certain possible contingencies which are well illustrated in a case of large, circumscribed appendiceal abscess that came into my hands a short time ago, from which fecal concretions were removed, the appendix having sloughed. The abscess was incised and the cavity drained with gauze, and the patient made an excellent recovery. Eight weeks after a fecal fistula occurred, and what to do with it was a question. I opened the abdomen; from the head of the colon I came down upon a mass of adhesions in which was buried the stump of the appendix; resected and inverted it into the cæcum, cut out the fistulous tract and closed without drainage. The recovery was rapid and uneventful.

In reference to foreign bodies being found in the appendix, such as seeds of fruits, shot, etc., I have been exceedingly skeptical. But it was only last week I removed an appendix in which I found a black bristle about the length of those used in hair-brushes. Had I not opened the appendix myself I should have thought the bristle was there by accident.

Dr. H. H. Grant, of Louisville.—I remember to have heard Professor Gross, when advocating venesection, urge to "bleed for effect;" and that when he advocated the administration of opium, to give it not according to the dose laid down by the *Materia Medica*, but "to give the patient relief." When an individual presents himself to be operated upon for appendicitis, the object to be attained is to relieve him. If the abscess presents beneath the skin and muscle outside the peritoneum, I would unhesitatingly incise it and drain. If, however, it is within the peritoneum, alongside of the bowel, with infection extending downward and outward, the peritoneum should be incised and search made with the finger for the abscess and pus pocket. When adhesions have not shut off the general cavity it is clearly proper to remove the appendix. All the operations should be done with a view to relieving the patient, not with the object of obtaining any particular glory or following any particular plan. It has been my experience in operating for appendicitis to have had no

deaths follow those cases in which I simply opened the abscess, notwithstanding the fact that in two cases I have found a gangrenous condition of the structures overlying the peritoneum, and in all probability involving it. The strength of those adhesions which shut off the abscess from the peritoneal cavity are often very firm indeed, and must be in a measure impenetrable to bacteria situated in the abscess if they can prevent peritonitis while a gangrenous condition is taking place on the outside. It emphasizes the conservatism suggested in the paper. If by opening an appendiceal abscess, gently curetting the diseased material and establishing drainage, we relieve the patient and ward off the danger of septic infection of the peritoneum, which stands staring us in the face, we may even be contented if fecal fistula results, or even if a ventral hernia occurs as the result of an imperfect operation.

As appendicitis is a widespread disease, and many cases are met with by rural surgeons, it is an exceedingly wise plan for those who have the direction and instruction of those surgeons to lay down for them as simple and safe a plan as is justified.

Dr. A. Vander Veer, of Albany.—I want to ask Dr. Davis, whose paper I have listened to with a great deal of interest, whether he did not mean extraperitoneal abscesses.

Dr. Davis.—Yes.

Dr. Vander Veer.—You do not mean that you operate in that particular class of cases referred to by Dr. Price in his way?

Dr. Davis.—No.

Dr. Vander Veer.—Then we have been covering a field in the discussion which is not exactly germane to the subject. I believe that this condition of appendicitis should be gone over thoroughly again and again. I do not believe we have discussed it as much as we should, and we ought to have more papers from Dr. Price and others. Then we may be able to reach some definite conclusions in the near future. We would likewise be able to tell the country physicians how to reach a diagnosis in the classification of the broad term appendicitis. I believe Dr. Bryant has done as much for us in calling our attention to the anatomical relations of the appendix as Dr. Price has done in his brilliant surgery. When I am called to a case of appendicitis I first think what kind of an appendix the patient

has had from the time of his birth; what kind of appendix this young lady has, where it is located, and so on.

I was called to see a case not long ago in which there was marked tenderness in the right inguinal region; no distention, no tympany, and no evidence of general peritonitis; and it lasted two or three days. At the end of a week or more, after the patient had been put to bed, I examined him and found tenderness in the right lumbar region. There was yet evidence of tenderness in the right inguinal region, but no general distention of the abdomen. After two or three days the tenderness in the inguinal region disappeared under saline cathartics, but increased in the lumbar region. I made a free incision at this point, as I have done in other cases, and found a gangrenous appendix. When I began the operation there were two or three bright physicians looking on, and they asked me whether I was going to make my incision in the median line or to the right side of the abdomen. I said I preferred the lumbar incision in this particular case. They were surprised, and asked whether I expected to reach the appendix there. I replied that I did not care very much about the appendix; that this man had an abscess in the lumbar region, which originated in the appendix, and that proved to be the case. The patient recovered, and has since had no return of the trouble.

I saw a case with a physician a few years ago at Glens Falls. He had evidence of inflammation in the right inguinal region, and had been sick for two weeks. When I looked him over there was no tenderness there—no tenderness in the right lumbar region at all. The patient said that he had had some trouble in passing urine. I passed my finger into the rectum, found an abscess forming there, opened and got a portion of the appendix down through the rectum.

I saw a bright young man at Kingston, who gave a history of three marked attacks of relapsing appendicitis. No tympanites. I saw him Saturday afternoon, at which time his pulse was not above 96, his temperature 100°. The parents were extremely fond of the boy, and said they could not think of having him undergo an operation, but I said that if he was not decidedly better I would come and make the necessary preparations for operation. Later I received a telegram that his temperature was 103°. The belief was entertained that it was an intraperitoneal

abscess of some sort, and after looking him over, noticing an absence of dulness and a flat abdomen, but thinking of the temperature, which had now risen to 104°, I made an examination per rectum and found there the old condition. I opened there, and got a portion of the appendix. The patient made a good recovery. The location of the appendix is uncertain.

One more case. A young man at Granby had inflammation in the right iliac region. Over on the left side was a distinct fluctuating mass. It was thought that the boy had an abscess in the left side. At that time Dr. Fowler had not reported his left-sided cases of appendicitis. Here was an abscess which we explored with the needle of the aspirator, and out came pus with a fecal concretion. We thought there might possibly be an abscess connected with the descending colon. We washed out the cavity carefully, introduced a probe, and to my surprise the probe went across the abdomen in this direction (indicating) between the layers of the muscle in the right side, and I have no doubt in my mind that the abscess originating from the appendix had walled itself off from the peritoneal cavity, and had then burrowed between the layers of the muscle. After washing out the cavity and inserting a drainage-tube, the patient made a good recovery, and has had no return of the symptoms since.

One Saturday afternoon I received a telegram to go twenty-five miles into the country. I said to the Doctor, What is your case? Describe it to me as clearly as possible. He said the young man had been sick for a week with swelling in the right inguinal region. I told him that I could not get there till midnight; that this was no time to operate, but that I was sure there was pus there. I told him to operate, and he did so, and the case did well. If you make a diagnosis of extraperitoneal abscess, resort to a conservative line of treatment. But if a patient presents recurrent symptoms, do the operation just as you would do it for relapsing appendicitis.

Dr. W. E. B. Davis, of Birmingham.—At the meeting of the American Association of Obstetricians and Gynecologists, held in Toronto, there was a well-marked division of opinion among those who took part in the discussion. Some claimed that in all cases of abscess from the appendix it would be wise to break up the adhesions and remove the appendix if it could be found. In other words, that we should do a complete opera-

tion. I imagine the essayist had in view, in presenting his paper, the position that one would be placed in who makes a simple incision in such cases for the purpose of evacuating the abscess where the trouble recurs. He would then be criticised for not having done a radical operation at the time when he opened the abscess. I think the position taken in regard to what shall be done after an operation of this kind is wise; that the patient should be urged to have an operation done if there are any symptoms of appendicitis after the patient gets up from the operation on the abscess. Even if the symptoms be slight, it would indicate that there is still trouble left behind, and the patient should not delay in giving consent for operative interference. I do not think it is best to make search except by very gentle exploration for the appendix at the time of the first operation, but if symptoms develop subsequent to the operation the patient should submit to a secondary one. If another attack occurs an operation should be done within twelve hours, so as to prevent general septic peritonitis, which cannot be cured after it is well established.

Dr. Bedford Brown, of Alexandria, Va.—I wish to put a few questions to the Association, more for the purpose of gaining information than of discussion. What percentage of the cases of general peritonitis in the experience of the Fellows is due to disease of the appendix? On the other hand, what proportion of cases of disease of the appendix cause general peritonitis? What are the usual causes of so-called idiopathic peritonitis? Are there ever any cases of strict idiopathic peritonitis? Formerly, the cases of what we called idiopathic peritonitis were probably due to sepsis from appendicitis. Now, in my past professional life I have seen quite a large number of peritoneal inflammations which were called idiopathic peritonitis, and I doubt very much whether there was a case of that kind in existence. Later years, in attending cases of peritonitis and in examining them, I found that there was a beginning point in the abdominal peritoneum where the disease commenced. It was a point from which the disease radiated over the general peritoneum, and that point was in the region of the appendix. It was the point of principal tenderness, of fulness, of pain, and I found in association with my fellow practitioners that those cases which they called idiopathic peritonitis were actually and posi-

tively due to incipient disease in the appendiceal region. My belief is now that all of those cases which were so ill-defined and so misunderstood as idiopathic peritonitis were due to some inflammation in the region of the appendix, as was shown later by the effects. What proportion of cases of disease of the appendix caused general peritonitis? My impression is, so far as my own experience goes, that not one-third of the cases of appendicitis produce general peritonitis. My experience teaches me that the majority of cases of appendicitis are local. I have repeatedly seen cases of peritonitis recover without surgery, the disease being purely local. There was no suppuration; there was evidently adhesion of the peritoneum, and I have seen cases of recurrent appendicitis three or four times in the same person. All of the cases recovered without operative interference. So I am impressed with the conviction that probably not more than one-third of the cases of appendicitis produce general peritonitis. The usual causes of so-called idiopathic peritonitis I have briefly discussed. I would like to get the sense of the Fellows who have more experience than I have on these points. Then, again, there are other points from which radiate septic infection, causing peritonitis, as suppurative disease of the Fallopian tubes, ovaries, ulceration of the intestines. All of these cases have heretofore often been classed under the term idiopathic peritonitis. Recent investigations all go to prove that all cases of peritonitis have a starting point of infection.

Dr. Joseph Price, of Philadelphia.—Just a few words in reference to some remarks that were made. There was an allusion in regard to teachers or the men who are to do the teaching when it is done. This question was discussed in a certain medical society, and one of the prominent teachers said that we ought to be careful in discussing so freely this subject, for every doctor at the cross-roads was operating for appendicitis. It is the duty of teachers, first, last, and always to prepare the cross-roads doctor to relieve suffering and to save life. It remains for us to do what we can in educating the profession how to deal with cases of extra-uterine pregnancy, pus tubes, or appendicitis while we occupy the conspicuous position of teachers, and we rejoice that we do.

Dr. Wyeth, I believe, alluded to pus in the lungs and spleen as being more common than is generally supposed. I remember two prominent cases that were treated by Drs. Da Costa and

Pepper which discharged pus from the liver and lungs. Both cases made tedious recoveries. Dr. Pepper has emphasized the importance of making a rectal examination in all cases of appendicitis.

One point in regard to diagnosis. Usually the prominent symptoms are a sufficient guide to the doctor as to the seat of his incision.

Dr. Davis (closing the discussion).—As it is getting late, I will not discuss the many points that have been brought out. I am exceedingly obliged to the members for the free and thorough discussion they have given my paper.

As to Dr. Brown's remarks in reference to idiopathic peritonitis, I do not believe we have such a thing. As to general suppurative peritonitis, I do not believe it is susceptible of cure. Of course, we may have circumscribed suppurative peritonitis which is amenable to surgical treatment, but where the whole peritoneal cavity is involved in suppuration, as in the cases reported by Dr. Douglas in our last year's Transactions, I do not believe such cases are susceptible of cure. I think, as I said then, that Dr. Douglas was mistaken in his cases. I believe so yet, notwithstanding the opinion of Dr. Price to the contrary.

Dr. Vander Veer has reported some interesting cases which illustrate the various routes pus will take from the appendix. It will go anywhere. You may find it in the leg, in the liver, or cropping out in the pleural cavity. I had one case where pus burrowed up and into the liver.

As to the danger of the fountain syringe, as mentioned by Dr. Wyeth, in these cases as little manipulation should be applied as possible. He has called attention to the importance of not introducing the nozzle of a fountain syringe and allowing the water to flow too freely, because by so doing you rupture the adhesions and produce infection of the general cavity.

I could not think Dr. Price and my brother were discussing the same character of cases when they were describing such radical and different treatment—one the conservative, and the other the radical. Dr. Price tells us that in the acute cases which Dr. Wyeth referred to there is only a little pus around the appendix; he removes it and breaks up any adhesions that may be found. So do I. In extra-peritoneal abscess it is better not to break up extensive adhesions, but we should content ourselves with opening the abscess and draining it.

COMPARATIVE FREQUENCY OF STONE IN THE BLADDER IN THE WHITE AND NEGRO RACES.

By George Ben Johnston, M.D.,
Richmond, Va.

It is commonly stated by writers on urinary diseases that stone in the bladder is of rare occurrence in the negro race. This is so at variance with my own experience that I have instituted an investigation either to prove the statement or to correct the fallacy.

Those in our own country who have mainly written on stone have resided chiefly in sections where the negro is scarce, and have had no personal knowledge of his diseases. Their statistics have been drawn from a few reporters who have chronicled unusual numbers of cases. Hence their conclusions are based upon improper information, and are misleading. To ascertain with as much accuracy as possible the real ratio of stone between the two races, I have procured extensive reports, and these lead to a contradiction of this heretofore unchallenged utterance. I have avoided, except in one instance, the use of published cases, and endeavored by a painstaking method to collect material from which to adduce my own conclusions.

I selected the Southern States of Virginia, North Carolina, South Carolina, Alabama, Georgia, Tennessee, Kentucky, Florida, Louisiana, Mississippi, Arkansas, and Texas as the field of inquiry.

I chose, by careful methods, 400 representative practitioners to correspond with in order to procure the necessary data. To

each of these I sent a personal letter and a sheet of questions. I received 338 responses. Ninety-four contained information, and the remainder were negative. I succeeded in collecting 1068 cases of stone in the bladder. Of these, 952 were in white subjects and 116 in negroes. It is at once observed that the negro cases represent 9.55 per cent. of all cases reported.

It is not denied that stone is less frequent in the negro than in the white, but the disparity is not so great as even these figures would indicate. The United States Census for 1890 fixes the total population of the States enumerated at 17,464,580. Of these, 11,169,598 are whites and 6,415,336 are blacks. This gives us a stone to every 16,352 persons, the ratio of stone in the whites being one in every 11,732, and in the blacks one in every 55,305. Thus it appears that stone is only $4\frac{72}{100}$ times more frequent in the whites than in the negroes.

This showing is quite sufficient to disprove the idea of immunity which the negro is supposed to enjoy, and is borne out by statistics collected by Dr. F. L. Parker, of Charleston, South Carolina, and published in the *Transactions* of the South Carolina Medical Association, under date of April, 1879. Dr. Parker, by most diligent and laborious efforts, succeeded in collecting histories of 132 cases of stone occurring in South Carolina between the years 1825 and 1879. Of these, 102 were in white subjects and twenty in blacks, thus exhibiting a larger percentage of blacks ($15\frac{5}{33}$) than my cases show, and I have no doubt that, if equally accurate statistics could be gotten from all of the Southern States, this ratio would be the proper one.

It is nevertheless evident from the large number of faithfully reported cases I exhibit, and a study of Dr. Parker's cases, that stone in the bladder is by no means uncommon in the negro.

Although not entirely relevant, there are some facts developed by my inquiries which are interesting and worthy of mention. Geographically these stones were distributed as

follows: Alabama, 10; Arkansas, 11; Florida, 28; Georgia, 90; Kentucky, 56; Louisiana, 19; Mississippi, 6; North Carolina, 126; South Carolina, 66; Tennessee, 128; Texas, 98; Virginia, 430.

It will be observed from this table that some States are peculiarly exempt from calculous disease, notably Mississippi, Arkansas, Alabama, Louisiana, and Florida. "Stone is extremely rare in this section" is an expression found in numbers of letters from my correspondents in these States. Although the five States alluded to have an aggregate population of 5,340,805, or a little more than one-third of the population of the twelve States studied, they supply only seventy-four cases of stone, or but eight more than South Carolina alone, while Virginia furnished nearly six times their number.

Sex is specified in 788 cases and not stated in 280. Of those in which the sex is indicated, there were 691 in males and 97 in females, or about seven times oftener in males than in females.

There were 182 cases not subjected to operation and 584 in which the stones were removed by the following methods: Lateral perineal, 249; median perineal, 100; suprapubic, 138; vaginal incision, 32; dilatation of female urethra, 28; crushing, 35; operation not given, 5. Of those operated on, 541 recovered and forty-three died. No report of operation in 304 cases.

My own cases are incorporated in the foregoing statistics. During my twenty years in practice I have made notes in forty-one cases, which is the third largest list furnished by any reporter, and, what seemed to me the enormous number of cases in the negro in the face of its supposed rarity, caused me to set on foot the inquiries leading up to this paper.

I have records of 41 cases: There were in whites, 35; in blacks, 6; in males, 39; in females, 2.

Thirty-nine were operated on and two were refused operation on account of advanced kidney disease; both died. In twenty-five cases lateral perineal lithotomy was done, in twelve

suprapubic, and in the cases of the two females the urethra was dilated and fragmentation practised. I have had no deaths following operation.

DISCUSSION.

Dr. James Evans, of Florence, S. C.—There is one point in connection with this paper that interests me very much. I think one reason why the negro is less subject to stone than the white person is that he lives less on nitrogenous food, and this is particularly so on the coast, where, in addition to fish and oysters, his diet is chiefly vegetable. Though I have no statistics to bear me out in the matter, I am under the impression that stone is found more frequently among negroes in the Piedmont section of South Carolina than in the counties along the coast, and it is because the negroes in the more elevated part of the State dine more like their white neighbors, and are larger meat eaters. I can hardly account for the differences in the prevalence of stone in the States mentioned unless it be that the conditions under which the negro lives in Florida and in the southern part of Alabama, where most of her negro population reside, are almost identical with the coast counties in South Carolina.

Dr. W. E. B. Davis, of Birmingham, Ala.—We are under obligations to Dr. Johnston for this valuable paper because it required an immense amount of work to prepare it. It is an interesting contribution to our literature and to our Transactions.

Dr. John D. S. Davis, of Birmingham, Ala.—I desire to express my appreciation of the paper and of the work done by Dr. Johnston along this line. I have only seen one case of stone in the negro. I desire to apologize to Dr. Johnston for not sending him a report of the cases of stone I have treated. It was not intentional, I forgot to send them.

Dr. Johnston (closing the discussion).—I will say that the question of drinking-water was investigated. There were some questions asked concerning the character of the drinking-water used, and after summing up the replies to those questions, the conclusion was reached that drinking-water had absolutely no

effect in the production of stone. For instance, one of the strongest limestone regions I know of is the country from which I came—the mountains of southwestern Virginia—and the inquiries made among competent medical men there, and they were very numerous in that region, failed to discover more than half a dozen stones in twice as many counties where the limestone is very strong. The general opinion of the men who replied to this particular question was that water had no influence in the production of stone. I would like to state also that I did not in a single instance use the figures of dead men, such as Dr. Briggs, Dr. Winslow, and others, whose lists of stones have been enormous. Dr. Parker's statistics were from men living and at present at work. Their statistics I considered more valuable than those which I could secure from a study of published reports. I especially corresponded with physicians who were engaged in local work, because I believed it would be a truer expression of the condition that I sought to investigate.

ABDOMINAL PREGNANCY.

By Cornelius Kollock, M.D.,
Cheraw, S. C.

The pathology of extrauterine fœtation has been described by many in a manner too elaborate to present a clear conception of the trouble or to suggest a potent and reasonable remedy for the accident. A discussion of this extraordinary freak of nature should include some consideration of its causes. Observation and experience have revealed certain facts that are of value in this respect. An inaptitude for conception, long-continued sterility, malformation of the uterus, and catarrh of the Fallopian tubes are acknowledged to be potent causes of this distressing trouble. When the epithelium is destroyed in any portion of the tube, the large ovum will not pass; but while catarrh of the Fallopian tubes is sufficiently destructive to prevent the passage of the large ovum, the small spermatozoa, which seemed to have an independent motion, may pass and cause fecundation. External adhesion, simple disturbance of the physiological functions of the tube, may be regarded as powerful influences in causing misplaced conception.

The classification of varieties of external fœtation by early writers on the subject is entirely too elaborate. Ten varieties have been given. The number has now been reduced. Perry limits them to three: tubal, ovarian, and abdominal. The theory of Lawson Tait, now held and advocated by T. Gaillard Thomas and other distinguished embryologists, rather simplifies matters. It seems reasonable to assume that all extrauterine efforts are at first tubal; that other varieties may be seen after the tubal sac has been ruptured and the ovum thrown out. A variety known as interstitial is simply

tubal, for it takes place where the tube has entered the uterus. When the tube is ruptured at a point under its posterior surface where it is pressed by the broad ligament, the ovum may develop in the broad ligament and become extraperitoneal. If the tube is ruptured on a part of its free surface, the ovum enters the abdominal cavity, and there the growth is developed sometimes to an enormous size, as was illustrated in the case I am about to report. Ovarian pregnancy cannot be set aside with a word only. We may readily admit that the ovum does not always escape from the rupture of a follicle, and that spermatozoa sometimes do enter a follicle and fecundate it. Laying aside many of the cases mentioned by older writers, we must recognize and consider those so carefully and cautiously reported by Porter, Kammerer, Spiegelberg, Lusk, Wyeth, and other competent authorities of modern days. We must admit the evidence furnished of the possibility of such a variety of extrauterine fœtation ; but many of the cases of supposed ovarian pregnancy are instances in which the ovum has grown along the fimbriæ and become attached to the ovary.

On October 18, 1894, I saw for the first time the patient, a dark mulatto, aged thirty-four years, the mother of three children ; general health had been good until within the last fifteen months. She was enormously distended, and measured at the umbilicus sixty-three inches. Fluctuation was evident, and wave-tap very distinct. Doubt was expressed by some present as to the diagnosis of the growth ; while some favored the idea of its being uterine, with others there was a question as to the position of the tumor. The patient, however, affirmed most positively that she was pregnant, and had gone four months beyond the actual period of gestation. A thorough examination confirmed the suspicions of all that the case was one of unusual complication.

Laparotomy was decided upon, and an incision was made four inches below the umbilicus. The walls were so thin that the instrument penetrated the cavity before it was certain that the abdominal muscles were divided, when there was

a sudden and copious discharge of as offensive matter as I have ever known to come from the body of a living creature. When the fluid had passed out, an immense fibroid was removed from the anterior portion of the sac. The cavity also contained a fœtus weighing ten pounds. This was greatly macerated, having been dead so long, and floating in a large quantity of offensive purulent matter. So firmly was the fœtus packed in the cavity that, in removing it, a part of the scalp was torn off, and with it a large bunch of black hair. After removing the fœtus, the placenta was with difficulty detached. It was as large as a hat and resembled it in shape. It lay well in the right hypochondrium, in contact with the sternum, with which it formed strong adhesions. It had a free vascular supply, as many large vessels could be seen after its removal, spanning the cavity from which it was taken. The hemorrhage was frightful from the rupture of many of these large vessels, and could only be controlled by packing the cavity with six yards of iodoform gauze and three yards of towelling. The heart and pulse were sustained by hot saline injections in the right hip and frequent injections of strychnine and brandy. Hot applications were also made to the extremities. Under this treatment the patient soon rallied and developed a fair pulse. The packing was allowed to remain in till the next day; afterward a large fold of iodoform gauze was introduced daily to facilitate drainage, and this was covered with a snugly fitting bandage. More than a month passed; she seemed to be doing well and could walk about the room, when imprudence in eating brought on an attack of acute indigestion, followed by complete stricture of the bowels and stercoraceous vomiting; after some days death ensued.

The large mass constituting the placenta had undergone fibroid degeneration, with only a small part of the placental tissue remaining. Further fatal degeneration had begun to take place in the fibroid tissue. An interesting question comes up here. Considering the weak condition of the patient, would it have been better to leave this large placental mass for sub-

sequent absorption or removal? Taking it away subjected the woman to almost fatal hemorrhage. At the post-mortem the uterus and ovaries were found to be of normal size, and to present no pathological lesions. The pregnancy was a tubal one, occurring in the left Fallopian tube near its fimbriated extremity, and involving a portion of the broad ligament. When the two peritoneal folds of the ligament were brought together the sac cavity between them would not have enclosed a tumor larger than an ordinary orange. The fœtal sac was developed between the abdominal wall and the omentum—the latter forming the floor. The fœtus lay diagonally across the abdomen, the feet in the left lower pelvic cavity, and the head under the right ribs. The omentum protected the abdominal viscera from being matted together by the adhesions, although the floor of the sac contained a large amount of fœtal hair firmly imbedded in its tissues. One small band of adhesion stretched across a loop of small intestine caused the fatal obstruction of the bowel. The patient, after the suffering she had undergone from the retention of a large fœtus four months beyond the period of gestation, the severe operation to which she submitted, and the almost fatal hemorrhage that followed, was well on the way to recovery, lived comfortably five or six weeks, and would probably be living now but for the unfortunate intervention of intestinal obstruction.

A CASE OF EXTRAUTERINE PREGNANCY.

By J. T. Henry, M.D.,
Chester, S. C.

Laura C., negro, widow, aged twenty-eight years, mother of three children; specific history negative. Menstruated December 25, 1894. When the period should have come in January, 1895, she had exposed herself on the wet ground and caught a cold. This was thought to be the cause of the cessation. In March she began to have pains in the small of the back and a sense of weight in lower abdominal region. About April 15th she began to flow again, and very copiously, which was attended with colicky pains, which were very severe. Dr. W. B. Cox was called to see her, and gave her ergot for the flow, which checked it, but the pain and the dead weight continued. She became also very constipated. Dr. Cox was called again May 10th, and on examination found the uterus very much displaced forward, but empty; he diagnosed a tumor. The patient being very destitute, he recommended her to go to the poor-house, where I first saw her May 20th.

After making an examination and weighing the history, extrauterine pregnancy was suspected, though I was by no means sure of the diagnosis.

After giving the patient what preparations were possible in a South Carolina poor-house, which consisted in having bowels moved with magnes. sulph. and a free use of soap and water on the outside, I operated May 28, 1895, with the assistance of Drs. Pryor and McConnell, a medical student, Mr. Lindsay, giving the ether. The patient's temperature

was 102°, pulse rapid, and tongue was much coated and breath very bad when she went on the table.

The abdomen was opened freely and a large, dark mass nearly as large as the head of an adult came into view. The uterus was crowded very much forward. The mass lay posterior to it, and very much adherent to the fundus posteriorly and to the promontory of sacrum. The fimbriæ of the right tube seemed to spread out over the covering of the mass. The mass was with some difficulty freed from its attachments, except that to the fundus of the uterus, and it was thought best to remove the uterus with it, which was done after tying and cutting the broad ligaments in the following way: A large needle armed with a large, braided doubled silk ligature was put through the uterus antero-posteriorly, at what was supposed to be the internal os; the needle was cut out and each ligature embracing one-half of the uterus; the amputation was made so as to leave the stump in a cup-shape.

The peritoneal edges were brought together by means of interrupted silk sutures. The sac was ruptured early while breaking up the attachments, and a quantity of thick fluid escaped. It had the appearance of boiled starch mixed with chocolate, but was not offensive. The fœtus was five inches long, and lay between the placenta and the uterus; cord attached to the left margin of placenta. The placenta was attached through the intervention of the thin outer layer of the sac to the sacrum, intestines, and omentum. There was very little blood lost in breaking up the adhesions, as the circulation in the placenta and fœtal mass seemed to have ceased for some time previous to the operation; in fact, the line of demarcation seemed to have been established. The abdomen was thoroughly washed out with sterilized water and closed without drainage. The temperature gradually went down, reaching normal on the fifth day; bowels were moved freely on the second day with sulphate of magnesium, and kept moving with same.

Patient sat up on the fourteenth day, and was out of bed in twenty-five days. After she had been about for a week

there was a dirty, bad-smelling flow from the vagina, which readily subsided after the injection of hot water and borax. She has never had any more trouble up to this time, and has gained twenty-five pounds and makes a full hand in the field. She informs me that sexual desire and gratification are normal.

DISCUSSION ON PAPERS BY DRS. KOLLOCK AND HENRY.

Dr. Henry O. Marcy, of Boston.—Mr. President: I have listened with interest to these papers, and at the outset I wish to say that if science has taught us anything, it is the early recognition and the more prompt application of the remedy for the cure of conditions fraught with so great danger. I am sure I am addressing men who believe with me that cases of extrauterine pregnancy are far more frequent than are ordinarily supposed, and yet I rise simply for the purpose of placing on record an unreported and extremely obscure case that came under my observation within a year. The patient was the mother of five children; was sterile for eight years; then something happened, menstruation became irregular, and she was confined to her bed. Her condition not being understood, she was sent to one of our public hospitals, and the whole staff kept her under observation for an entire month. Examinations were made from time to time, and it was determined that there was a fibroid tumor complicating pregnancy, the tumor being to the right of the uterus. After the case was studied more carefully the woman was sent home with the belief that she could be delivered in the ordinary manner, because the fibroid tumor had not been sufficiently rapid in its growth to interfere with the processes of gestation. About ten days before she was admitted to the hospital she felt violent movements. A short time thereafter these movements suddenly ceased and she became ill. The staff (three in number), who examined her so carefully in the hospital, was called in consultation. They were bright men. They again went over the ground carefully and concluded that there was a fibroid tumor to the right of the uterus, the size of a large cocoanut, and it was decided to deliver by the natural process. Far down in the *cul-de-*

sac could be felt the head of a fœtus. There was some difficulty in finding the os. The cervical canal was open and soft. It was determined impossible to deliver in the usual manner and a laparotomy was decided upon. The fœtus, a well-nourished child of eight pounds, was found free in the abdominal cavity. The gestation sac was very thin and everywhere adherent. The placenta was attached to the mesentery. The uterus was the rounded tumor found to the right, supposed to have been a fibroid. This was removed, the abdomen washed out, and for a time recovery seemed probable. Eight days after the operation the woman died of sepsis.

Histories of this sort are becoming more and more rare, for the reason that the younger members of the profession are being taught how to make a diagnosis in cases of extrauterine fœtation, which was not recognized and written about even ten years ago.

A physician told me yesterday of a case of extrauterine pregnancy upon which operation had recently been performed successfully. A fœtus was found in *each* tube, certainly a very rare occurrence.

Dr. Joseph Taber Johnson, of Washington.—I have a case to report which is somewhat similar to the ones narrated by Dr. Kollock and Dr. Marcy, in that the woman passed through the hands of a number of practitioners who never made a diagnosis. It was a case of extrauterine pregnancy with a full-grown child in the abdominal cavity, the woman passing four months beyond the natural term of gestation, so that at the time of operation she was thirteen months pregnant. The child was in the abdominal cavity, but rupture had originally taken place from the tubal region. It had a gestation sac around it, so that when the operation was performed in the presence of Dr. Stone and others the tumor was easily enucleated. While I was looking for a pedicle, or something to tie it at the base, it enucleated itself, and almost rolled out on the table. Some doubt was expressed then as to whether or not it was a case of extrauterine pregnancy. Two gentlemen took the mass, which was as large as a football, to an adjoining room, so as not to contaminate the atmosphere of the operating-room, opened it and brought back a full-term child, which had not been macerated. There was no difficulty in this case in dealing with the after-birth. The placenta was inside of the sac which contained the fœtus, and all came out together.

There was only a portion of the broad ligament to ligate. It was torn off from the side of the sac. The patient made a rapid recovery, leaving the hospital at the end of three weeks. She is now living in Canada. I received a letter from her a little more than a month ago, and she is perfectly well. The operation was done two years ago.

The great thing that puzzles us in these operations is, how shall we deal with the placenta? The cause of death in the great majority of cases of late operations has been from hemorrhage, on account of the vascular condition of the placental sac and the impossibility almost of arresting hemorrhage underneath the placenta. The placenta may become attached to the intestines, mesentery, or omentum, or viscera, which cannot be removed, and one cannot ligate it very well. Hence the difficulty.

I was surprised to hear, if I understood Dr. Henry's paper correctly, that he ligated the body of the uterus in two halves, and that his patient got on so well. I have always acted on the principle that it was dangerous practice to include too much uterine tissue containing vessels in the ligature, for the reason that the uterus sometimes contracts considerably in half an hour, and later on the ligature is so loose that it does not control bleeding. I am very glad to hear that the doctor's patient recovered.

Dr. Daniel T. Nelson, of Chicago.—I do not think there is a more important subject that this Association can discuss than that of extrauterine pregnancy, its diagnosis and treatment. Personally I do not know when I have got one of these cases. I find something in the pelvis of the woman, but whether it is extrauterine pregnancy, a fibroid, or dermoid, I am not bright enough to say. One of these cases came under my care many years ago, and terminated fatally.

The diagnosis was not made until after death. Knowing as much as I do now about the case, it would have been an easy matter under ether to have dilated the cervix, gone into the fœtus and delivered it in the natural way; but whether it would have been a safe way, I have some doubt. However, if another such case came up to-day I should pursue that course. In connection with this subject the questions to be answered are, When and how shall we operate? Shall we operate before the fœtus is

completely developed or wait until pregnancy has gone beyond full term? These questions I cannot answer.

Dr. I. S. Stone, of Washington, D. C.—If we had one more paper which included the operation for extrauterine pregnancy with tubal rupture, we would have had three papers covering the whole range of this subject. It is hard to confine ourselves to the papers we have heard this morning. They were brief, to the point, and very illustrative of a certain class of cases. As time is limited, I want to mention a fatal case. I think we sometimes learn more from our fatal cases than our successful ones. A patient was brought to a hospital in this city and a diagnosis of fibroid tumor of the uterus was made not by myself, or the hospital staff, but by two competent physicians. They were quite above the average in diagnostic ability, and I say this in view of what has been said relative to the diagnosis in these cases, It shows how well prepared one must be when he opens the abdomen for anything. The woman was in good condition for the operation to be successful, there was nothing the matter with the heart or kidneys; in other words, it was a promising case. When the abdomen was opened I found what appeared to be a membrane investing the entire pelvic viscera including the mass, which was very pronounced and nearly reached to the umbilicus. I should say the woman was about four months pregnant. Having proceeded that far with the operation, of course, we had to complete it, as the patient was in good condition. As soon as the adhesions were broken up, hemorrhage began with frightful rapidity. We had to decide at once what to do, as there was no time to think or to consult with colleagues when the hemorrhage was so severe as in the case I am describing. The uterus and tumor were firmly fixed in the pelvis. It is a different thing when you can lift up the tube, cyst, or tumor, and find the pedicle at the start, clamp the bleeding vessels and tie at leisure. In my case it was impossible to lift up anything or to find bleeding vessels. I make this statement based on an observation of a good many cases, and I know something about applying clamps and checking hemorrhage. The hemorrhage in these cases is only comparable to post-partum hemorrhage. When I found the uterus could not be secured I attempted to pack sponges around the uterine artery. Ordinarily, I know where the artery is so

that a clamp may be applied; but in this case it was impossible to find it. The woman became almost exsanguinated in spite of the sponges that were pressed firmly down into the sac, and in the short space of three or four minutes the woman's fate was sealed. What the result might have been in the hands of Dr. Price or others present, I do not know. In spite of transfusion, subcutaneous and otherwise; in spite of stimulation, bandaging the limbs, elevating the foot of the bed, etc., the woman became unconscious and died two hours after the operation. I was satisfied it was extrauterine pregnancy and was fully prepared for it. In spite of the best hospital facilities, she died. She certainly would have died in a private residence where the resources are not so good.

What I have to say now is illustrated by Dr. Johnson's case, and will have a bearing upon the case reported by Dr. Kollock. What we call extrauterine pregnancy may be outside of the broad ligament, and it may be covered by an investing membrane. I think many cases of so-called ruptured broad ligament are mistakes in diagnosis. I reach this conclusion from the fact that we frequently see blood-clots covered by investing membrane which has nothing to do with the broad ligament, except that it may be related posteriorly to the broad ligament. I saw Dr. Johnson's case which had gone thirteen months. It was not in the broad ligament, as we thought at the time. It had broken through the tube into the abdominal cavity. The hemorrhage in the case ceased after a certain length of time, and the investing membrane formed what we commonly call broad ligament, but is rarely or never found to be the broad ligament. You know how it is in cases of hæmatoma. Hæmatomas do not form in the broad ligament always.

Dr. H. P. C. Wilson, of Baltimore.—I want to detain the Society for a few moments to relate a case. In 1880 I was called in consultation to see a woman who had been delivered of an eight-months' child the day before by the natural passage. The child was living and healthy. After delivery the woman insisted that there was another child in the uterus. Her physician passed his hand into the uterus, explored it thoroughly, and concluded that there was no other child there. Still the woman had labor pains and insisted that there was another child there. I was called to see her, and under chloroform I passed my hand into

the vagina and fingers up into the uterus, and I could not discover a child. There was nothing in the pelvis to show that there was another child. By careful manipulation I could distinctly map out something, and after putting my head down to the abdomen I discovered the fœtal heart, and my diagnosis was abdominal pregnancy. As the woman was only eight months advanced in pregnancy, I advised that she be carried along, if possible, under anodynes and nourishment, and that when the ninth month was reached she be operated upon. A number of physicians saw the case and had different opinions as to what it was. I had satisfied myself by careful exploration that there was no child in the uterus. The case was placed under my care and the woman carried along to the end of nine months. She was then sent to the hospital, and in the presence of a large assemblage of physicians, who were interested in obstetrics and gynecology, I operated on her. I shall never forget the decided opinion of one of my brethren up to the moment I opened the abdomen. They all seemed afraid to give an opinion, and they made me so nervous that I did not have any opinion at all. I finally came back and clung to my first opinion that the case was one of abdominal pregnancy. There were three or four of our best men standing by my side, but they did not care to give an opinion as to whether it was a tumor or a child. In a few minutes, however, I managed to extract an eight-pound, living child. The child was sitting up on its buttocks resting on the brim of the pelvis with its face to the mother's face, and looked as natural as anything I have ever seen. I handed the child to the physician while I attended to the placenta. The placenta was attached to the bowel, or rather the bowels ran through the placenta, and there was no possibility of separating or getting them away. This was fifteen years ago, and we did not know as much then as we do now. I then determined to close the wound, partially leaving the lower angle open, and left the placenta, brought the cord out through the lower angle, sewed the sac to the walls of the abdomen, and two or three times a day washed out this sac. I am sorry to say that on the fourth day the woman died of septicæmia. The child lived between four and five years, but died of cholera infantum. This case was reported in the *American Journal of Obstetrics.*

Dr. W. L. Robinson, of Danville, Va.—I have a small con-

tribution to make to these interesting cases. The first case was sent me by a physician who said that the woman had a miscarriage. She was then flowing daily and having labor pains. I examined her carefully and found a mass in the left iliac region about the size of a large cocoanut. I diagnosed extrauterine pregnancy, operated, removed the mass, placenta, and packed with iodoform-gauze. The patient got well without any trouble.

The next case I had was one that had been opened through the vagina as a pus-sac, and drained. I dilated in this case with a uterine dilator, and still noticed that the abdomen was considerably enlarged. The woman had septic diarrhœa and fever; pulse 160, and temperature 104°. An attempt had been made to aspirate under chloroform a week previously by a physician in an adjoining town, and it took seven hours to resuscitate the patient. I operated under cocaine and found what I thought at first was a dermoid cyst, until I got some bones. I then drained with a good result.

I have seen two cases in consultation in which the belly was filled with bones, *débris*, etc. Most of the cases coming under my care were operated on under cocaine, and were cases of advanced extrauterine fœtation, as evidenced by the fact that bones came away during the operation.

Dr. George J. Engelmann, of Boston.—Dr. Kollock in his paper referred to the matter of migration, which has been referred to a number of times since, but we have very little certainty as to that fact, and I wish to record one instance in which such migration was evident, and the only question is whether it is the ovum or the protozoa. This patient had been under treatment in a clinic for years before for gonorrhœal inflammation of the tubes and ovaries. A complete clinical history could not be obtained, as the case had fallen into other hands. But the post-mortem showed a beautiful corpus luteum in the left ovary. The left tube was solid and was not involved in inflammation. The right tube hung up toward the appendix, and in it had been the ovum which had ruptured. The ovum must have travelled through the abdominal cavity or the spermatozoa met it there, and they returned together. The occlusion of the tube was the result of inflammation years before, and, of course, abdominal pregnancy seems very reasonable after seeing a specimen of that

kind. Had an early diagnosis been made in this case and a timely operation resorted to the woman would have been saved.

The cases of Drs. Kollock and Henry have been those of extra-uterine pregnancy in the middle and later stages. But I wish to take this opportunity to say a word with regard to the operative procedure, because some years ago I put myself on record as advocating the use of electricity in the early stages. I believe now that in the early stages it is the correct procedure to operate. When I advocated electricity in these cases it was during a period when operative measures were less successful than they are now. I still maintain that in the hands of general practitioners in isolated localities, who are not familiar with this type of operation, that before rupture in the early stages electricity should be resorted to. But these cases are rare, because the diagnosis is only made after rupture, and then very little remains to be done but to resort to operative interference. In cases in which the conditions are such as to attract marked attention, and where there is a suspicion of extrauterine pregnancy, I believe electricity should be tried. But in the treatment of this condition, where the physician is familiar with operative procedures, I should by all means favor operation, whether rupture has taken place or not, after the diagnosis is made.

Dr. Hugh M. Taylor, of Richmond, Va.—The gentlemen who have discussed the papers read by Drs. Kollock and Henry have alluded to the difficulties which attend the diagnosis of extra-uterine pregnancy. While I grant that it is not an easy matter in all cases, certainly in some typical cases we can make an accurate diagnosis in the early stages, and by early operation save our patient. One of the pioneer students of this subject in this country, Dr. William Baynham (1791), a plantation practitioner in Virginia, recognized tubal gestation in its incipiency, operated twice and saved his patients. If there were typical symptoms to guide Dr. Baynham more than one hundred years ago, they occur now. I have been impressed with the fact that whenever a subject like this is discussed by a local society, there occur at once an unprecedented number of cases. This is because we have the symptoms fresh in our minds and are looking for such cases. The point I wish to impress is this: there are typical as well as atypical cases, and in many the chain of symptoms is sufficiently linked to enable us to diagnose tubal gestation in its incipiency.

I make this assertion with the full consciousness of the fact that the man who essays to make a positive diagnosis in intra-abdominal and pelvic troubles will not infrequently find himself in error. I have seen better diagnosticians than myself mistake a dermoid, a distended tube, etc., for tubal gestation, and have seen these cases hurried to the operating-table; but not in one instance have I cause to regret an early operation. Without an exception, something was removed which was very much better out of than in the pelvis or abdomen.

The time for operative interference is before the rupture of the sac and the consequent fatal hemorrhage—before the rapidly growing mass has matted everything within its reach in the pelvis or abdomen, and certainly before there is septic infection of the long-retained sac and contents and systemic sepsis. The majority of the cases I have seen have had sepsis before they were brought to the surgical clinic, and in not a few instances nature was trying to get rid of it by boring an outlet through the vagina, rectum, or bladder. If we are to succeed, the cases must be diagnosed early and operated before rupture, vast adhesions, and sepsis. Contrast the simple technique of incising the abdomen, lifting out and ligating the distended tube with that incident to removing a mass retained for years, matted almost beyond recognition from a patient almost dead from sepsis.

I had an illustration some time ago of the horror which attends rupture of the gestation-sac in the early history of the case. The young woman had been married two years; thought she was sterile; had been treated for some pelvic trouble a year or two before her marriage, and at that time had been told that there was a mass on one side of the uterus. She came to me with the typical symptoms of tubal gestation, and these symptoms were so characteristic that I examined her at once, and found a mass not larger than a hen's egg, which I diagnosed as tubal pregnancy. A consultation was held the next day and my diagnosis was confirmed. On the third day I went to the patient's house and advised her to undergo an operation. While I was sitting by her side, telling her of the dangerous condition she was in, she put her hand to her side and exclaimed: "Oh, I have got such a pain!" She turned pale, grew cold and clammy, and started to faint. At first I hoped it was shock due to the bad news I had just told her, but in a few minutes I realized that I had a case

of ruptured tubal gestation to deal with. I put her in a carriage, hurried her off to the hospital in my city, operated, and found that rupture of the gestation-sac had taken place. The entire operation occupied not more than half an hour. In spite of this prompt action, the woman in ten minutes after the rupture of the sac had almost bled to death. In no instance have I seen such rapid effect of shock and hemorrhage. She was as pulseless in twenty minutes after the rupture as an hour afterward. Practically all of the blood in her veins and arteries had been emptied, in that short time, into the peritoneal cavity. When the peritoneum was incised blood spouted out of the cavity as if it came from a syringe.

We need only one such case in a lifetime to make an impression upon us, and to realize the fact that we had far better operate too often and even occasionally unnecessarily, than too late to prevent hemorrhage, adhesions, and sepsis.

Dr. Louis McLane Tiffany, of Baltimore.—In connection with this subject of extrauterine pregnancy, I would offer a suggestion with reference to those cases which are nearly dead from hemorrhage. They should be transfused. I mention two cases occurring in my own observation recently in which this treatment was successfully carried out. One man had received a severe cut, and when brought to the hospital in a police patrol-wagon he was apparently dead. He was at once infused to the extent of a quart of the normal salt solution, and recovered. Another man, about three weeks ago, was brought into the hospital by the patrol wagon, having received a severe cut in the axilla. So far as I could see he was practically dead, in that no heart-sounds could be heard and no pulse could be felt. The axillary vein was divided and exposed in the wound, no blood coming from it. I mention this fact to show how exsanguinated the man was. He was transfused and recovered. A teaspoonful of salt to a quart of hot water was used, and a quart or so put into an open vein. It is not necessary to select a vein in the arm or elsewhere, but the wound which let out the blood will usually admit the saline solution. One man was transfused through the jugular, the other through the axillary vein. The apparatus, which can be kept on hand, consists of a glass funnel with a piece of rubber tubing and a hypodermic needle. In the hospital a small glass pipette is used, and this can be had almost anywhere. If

necessary, a transverse cut can be made at the bend of the arm, when the vein will come into view, and the salt solution can be infused through it.

Dr. John T. Henry, of Chester, S. C.—I have very little to add in closing the discussion. I notice from the cases that have been mentioned that extrauterine pregnancy seems to be most common in the right tube. It was the same in my case, Dr. Kollock's case, and in one upon which I operated four weeks ago, and which I did not report. I have taken especial interest to notice whether a patient has been asexualized or not by operation. There is very little on this subject in our literature. It is important, because there is a certain class of patients who would rather die than to have themselves unsexed as far as their sexual gratification goes. In regard to the remarks of Dr. Johnson, I will say that in ligating the uterus I used very strong braided silk and tied it very tight. I used that method once before in doing a hysterectomy for fibroid tumor, and had no trouble whatever. I am very glad, however, that this point was brought out because I might in the future do the same thing, and I wish to discard a dangerous practice.

Dr. Kollock.—In speaking of extrauterine pregnancy being typical and the diagnosis of it attended with little difficulty, I think some of the members are mistaken about that. The case upon which I operated was not so typical as to enable me to easily make a diagnosis. I confess I was very much confounded when I was first called to see the woman. She was small, and weighed about 105 pounds. The abdomen was very much distended, and measured then 63 inches or more at the umbilicus. She positively affirmed that she was pregnant. Some of the physicians were inclined to agree with her, while others were not. I could not decide positively what the trouble was, but I adopted Sir Spencer Wells's rule, never to be certain as to the diagnosis until you enter the cavity. Then you see where you are. After opening the abdomen I found that there was something there that ought to come away. The abdominal walls were so thin that blood flowed copiously as soon as the first incision was made, before the abdominal muscles were divided. The first thing we removed was the fibroid, and then the placenta and fœtus. It was impossible to say whether a fœtus was there or not, as it

could not be felt externally. I felt something underneath and behind, but I was not sure as to what it was. I finally found that it was a fœtus.

Dr. Henry spoke of not asexualizing the female, and I agree with him fully. I make it my invariable rule when I have to do a hysterectomy for removal of the uterus, unless the tubes and ovaries are much diseased, I leave them. Some one has said, "What is the use of leaving them? They are no good to the women." I say they have an influence on the woman's character and temperament, and so they are good in that way.

Dr. W. L. Robinson, of Danville, Va.—The question very frequently arises when I want to perform ovariotomy, what effect it has on the woman? There is some difference of opinion in regard to this point. I have followed up my cases as closely as I could, and I may say that in those cases in which the patient has not been unsexed by disease, they have not been affected afterward by the removal of the ovaries.

Dr. W. E. B. Davis, of Birmingham, Ala.—It may not be pertinent to the papers under discussion, but I want to take issue with the remarks of Dr. Robinson. I believe gynecologists have been misled in regard to the matter of asexualization, from the fact that the cases they operate on are already diseased, and their sexual power is wholly or partially lost. Hence they did not have it when the operation was performed. There is no doubt that the sexual desire is diminished after these operations.

Dr. Robinson.—Do you mean in all cases?

Dr. Davis.—In a good proportion of them.

Dr. Robinson.—That statement does not correspond with the best information I can get from individual cases.

THE TECHNICS OF THE BURIED SUTURE.

By Henry O. Marcy, M.D.,
Boston.

The constant receipt of letters from all parts of the country, containing inquiries concerning the method for the safe application of the buried animal suture, prompts the writing of this brief contribution. At the risk of seeming dogmatism, I venture to assert that aseptic wounds, with very few exceptions, should be primarily closed by buried tendon sutures and hermetically sealed with iodoform collodion.

To accomplish this the surgeon must be master of the technics of aseptic surgery. Without it the buried animal suture should never be used.

Under aseptic conditions this suture may be safely applied with the assurance that the collodion seal is a guarantee of subsequent non-infection. Other suture-material may be used, as, for example, silk, silkworm-gut, silver wire, etc., with the certitude that it is non-infective when properly applied, and that it will maintain the structures in coaptation for an indefinite period.

I need, however, only refer to the general consensus of opinion that these materials are objectionable, because of their non-absorbability, and that too often such sutures become a source of subsequent irritation and discomfort, not seldom being eliminated as foreign bodies. To avoid these results the animal suture has received wide adoption. This was found ready at hand, seemingly well adapted to the purpose, in the catgut of commerce; smooth, even in texture, strong, in varying sizes—what could be more satisfactory? However, it was soon discovered that it was difficult of steriliza-

tion, and, as usually prepared, did not remain sufficiently long intact in the structures. Hence has arisen a great variety of methods of preparation. The defect, however, is inherent in the structure of the material itself.

It must be remembered that catgut is the connective-tissue sheath of the small intestine of the sheep. In order to separate it from the other intestinal coats, the intestine must be subjected, for a considerable period, to the decomposing processes of putrefaction. This is accomplished by the bacterial growth which develops in the maceration, attacking the connective-tissue sheath last as the most resistant. When this process is held in abeyance, and the fibrous coat of the intestine has been cleansed, it is found to consist of a thin layer of connective-tissue bundles which interlace obliquely in order to permit the physiological foreshortening and expansion of the intestine. The cement substance which holds the cells together has been more or less injured by the process of maceration, and the entire structure is everywhere replete with bacterial growths.

Longitudinal division leaves flat bands of this tissue which are twisted into strings of varying thickness—the catgut of commerce. When dry these are very strong and tolerably inelastic; but when wet, as for example, when buried in the tissues of the body, they speedily become soft, flattened bands of elastic structure, a condition which easily explains the unsatisfactory use of catgut in surgery, almost regardless of the processes of preparation to which it has been subjected.

In the tendons of animals the connective-tissue cells are disposed in an entirely different manner, and for quite another physiological purpose in the animal economy. Here the fibrils are placed in parallel bundles, held together by the cement substance for almost the sole purpose of strength. When the tendons are of any considerable size a few lateral fibres are interspersed for the purpose of holding the bundles together in a single mass. It is on this account that a tendon is weakened by subdivision, and when it has been too minutely divided it may become worthless for the purposes of strength, because of

the fraying out of these lateral fibres. Tendons subjected to maceration, like catgut, become speedily damaged because of the softening of the cement-substance which holds together the connective-tissue cells, and under these conditions, like catgut, a tendon is easily ruined on account of bacterial infection and resulting decomposition.

Carefully selected tendons are to be preferred for buried sutures, since primarily their anatomical construction makes them stronger, more compact, and, as a consequence, more resistant to the softening processes which must ensue when buried in the living structures. Secondly, when properly preserved, they have not been subject to bacterial decomposition, and hence they can be sterilized without detriment to their ultimate elements. Such tendons serve a very good purpose as sutures when taken directly from the freshly killed animal. This, however, is very rarely convenient, and therefore some process of preservation must be resorted to. If they are quickly sun-dried and kept dry they will remain intact for a long period, since bacteria cannot develop without moisture. This has been the custom indefinitely among the Indians in the preservation of their tendon suture material, which has constituted the thread of the savage since the beginning of history.

Although used by many surgeons, preserved in the dry state, and when ready for application soaked until supple in some antiseptic, the suture, even if aseptic, softens too quickly in the tissues.

Time does not permit a review of the various processes which have been recommended for the preservation and preparation of the animal suture. Perhaps the more common method has been to preserve it in alcohol alone or combined with other substances. When subjected to dry heat, as, for example, boiling repeatedly in alcohol or under pressure, the connective-tissue structures are rendered sterile, but are seriously damaged in their inherent composition, both in the connective-tissue cells and in the cement substance which holds them together. Profiting by the experience of the ages in the

manufacture of skins into leather, astringents in combination with oils have been experimented with, and in many respects most satisfactorily. This is largely the advantage which is obtained by the use of chromic acid, which, by a kind of hardening process, tans the tendon, that is, fixes the cement substance, holding the cells in more permanent apposition, and renders it far more resistant to the macerating effects of fluids.

Hence, chromicized catgut or tendon undergoes change much more slowly when buried in the living tissues. The difference in structure of the two substances already referred to is easily shown by the simple immersion of catgut and tendon, similarly prepared, for half an hour in a warm fluid—as, for example, in a 1–1000 solution of bichloride of mercury. The catgut becomes swollen, slippery, can be threaded with difficulty, and, when tied, the knot holds very imperfectly. The tendon, on the contrary, is supple, firm, inelastic, does not kink, and is manipulated with an ease and satisfaction unknown to one who has used only silk, silkworm-gut, or catgut.

When tendon has been chromicized, it is best preserved in a sterilized oily fluid. Experience has shown that by far the best preserving fluid is linseed oil sterilized by heat, to which carbolic acid has been added. Tendon improves with age, so much so, indeed, that I rarely use it until it has been in the carbolic oil from three to six months. A method far too common has been to preserve chromicized catgut and tendon in absolute alcohol, boiled under pressure. There is no question but that such material is sterile, but the important factor has been singularly overlooked that by this process the chromic acid is dissolved out of the tendon, thereby leaving it really less valuable than if chromic acid had not been used.

There remains the vital question to be answered, How can the surgeon be assured that the tendon suture in itself is not a source of infection? Primarily, that it has been taken from a freshly killed animal; that the said tendon has been quickly sun-dried, and kept dry until ready for preparation. This consists, first, in soaking the tendon in a solu-

tion of 1–1000 bicholride of mercury until supple. Then, carefully separate each tendon individually and dry separately between sterilized towels. They should then be assorted into small bundles and chromicized with the greatest care in a 1–20 watery solution of carbolic acid to which has been added one-four-thousandth part of purified chromic acid. This will prepare tendon of equal weight with the crystals of carbolic acid; but the tendon must be immersed in the solution immediately upon the preparation of the fluid, since, otherwise, in a short time the chromic acid will be thrown down as a sedimentary deposit. The process of chromization goes on more or less rapidly, dependent upon heat, exposure to sunlight, the quantity of material manipulated, and requires careful watching, since, if too rapidly effected, or permitted to remain too long in the solution, the tendon may be easily ruined. When properly chromicized, the tendon should be of a dark golden color. When taken from the chromicizing fluid, the tendon is best dried in the sunshine between sterilized towels, and should be immediately put up in carbolic oil, the whole process carefully conducted under aseptic conditions, the bottles securely corked and sealed. When wanted for use, the tendon is carefully taken from the bottle, soaked in a mercuric solution until supple, and then arranged in parallel strands, wrapped in a folded towel saturated with a 1–1000 mercuric solution, the ends exposed so that they may be withdrawn one strand at a time, as selected. If more convenient, they may remain immersed in a dish of bichloride solution during the operation and selected therefrom as required. The amount of the bichloride contained in the suture does no harm to the structures in which it is buried. I have often thought it an advantage rather than otherwise.

A brief reference to the history of the buried suture may be interesting. It is known that the Greeks and Romans used the strings of their musical instruments for various purposes in surgery. The first reference which I find to the use of the animal ligature was by Dr. Physick, of Philadelphia, who in 1806 suggested that such material should be of value. Dr. Physick

first published upon the subject in 1816. He recommended that the ligatures be made of chamois, or buckskin, variously prepared. For a considerable period his method was widely adopted. Dr. McDowell tied the pedicle of his first ovariotomy with buckskin, returning the same to the abdominal cavity, and closed the wound without drainage.

The best article which we have extant of this period is a prize essay, written by Dr. Jameson, of Baltimore, bearing date of 1827. He made numerous experiments on the lower animals, and recorded his observations with a care and skill worthy of any scientist. For a considerable time animal ligatures were used in London by Sir Astley Cooper and others; but in the subsequent period of heated debate upon the so-called processes of inflammation supervening in wounds, this most valuable experience was lost to science and forgotten, until repeated in our own time by Mr. Lister. His experimental studies are in large measure a repetition of those of Dr. Jameson, but occurred in a more fruitful age, the knowledge of the bacterial infection of wounds reducing to known terms the mysteries of the inflammatory processes so long discussed by the surgical masters.

In 1870 it first occurred to me that the separated structures in healthy wounds might be advantageously joined by coaptating the same with animal ligatures precisely as I had seen Mr. Lister ligate arteries. I used interrupted catgut sutures, cut short and left deeply buried in the wound. I soon found it more convenient to use a continuous suture. After a time I ascertained the defects inherent in catgut, and in 1880 I first published my experience in the use of tendons, taken from various animals, that from the hind leg of the moose proving, perhaps, the best. After a long research for better material, judging from the anatomical structure of the tail of the squirrel and opossum, I sought for the tendons from the tail of the kangaroo, and received my first invoice in 1882.

The superiority of these is found in that the psoas muscles subdivide into numerous fasciculi, each of which has its own separate tendon. These continue in separate parallel strands,

like a skein of thread, to their attachment to the very end of the tail. The anatomical picture is found in the tail of the rat and squirrel. These are, however, too short and fine for most surgical purposes. On the contrary, the tendons from the tail of the large kangaroo (Macropus giganteus) are many times too large, and when subdivided are liable to split flat and fray. Only quite recently my attention has been called to tendon of this character which is being sold for suture material.

The smaller varieties, called by the natives the Wallaby, furnish excellent tendons in suitable sizes without subdivision and are much to be preferred.

Ox tendons have recently been placed upon the market as cheap substitutes for the tendons from the kangaroo; they are quite too short for sutures, are uneven, and fray easily—in every way are inferior to the tendons from the hind leg of the caribou and moose which I used at the earlier period.

The aseptic tendon-suture, buried in wounds which have been made and *maintained aseptic*, approaches nearer to the ideal than any material yet in use. By it all wounds in healthy tissues, no matter how large, even the major amputations, should be closed securely; like structures being joined without recesses or pockets, thus doing away with drainage in any form. This prevents the need of expensive absorbent antiseptic dressings and permits of a simple germ-proof seal of iodoform collodion. Subsequent infection is *then* impossible.

The method of the application of the tendon-suture is of some importance. It should be continuous, since less of material is required in the wound, knots are avoided, and the tension upon the structures is equalized. This last is very important. Coaptation, retention, and rest are the factors to be considered. Undue constriction of the tissues devitalizes the parts and is to be carefully guarded against. If much strain is likely to ensue upon the coaptated tissues, I generally use the double continuous suture, which I commended to the profession many years since, applying it by means of a

needle with eye near the point, so that the suture passes in opposite directions through one opening or puncture, after the manner of the shoemaker in the use of his bristled waxed thread.

It is, however, important to remember we are only to coaptate and *not to constrict* the structures by such powerful measures. The Hagedorn full-curved needle is very convenient, since it serves as both needle and handle, and can consequently be best used without a needle-holder. The end of the suture fastened by a slip-knot, the needle is deeply buried in the structures to be coaptated, from side to side, entering each time directly opposite the emergence of the preceding stitch. When drawn upon the tendon-suture crosses the wound at right-angles and leaves its lips in secure coaptation, with *no foreign substance* intervening. This is impossible in the application of the buried interrupted suture.

The skin is closed by a fine tendon-suture taken in a similar way, penetrating only the deeper layer, subcuticular suture. This I devised and have used it almost daily for the last ten years, designed to avoid stitch abscesses, long before it was known that our most dangerous enemy was a micrococcus ever present in the dying epithelium of the skin.

The larger vessels are better ligatured with fine tendon, not too tightly, however, always remembering that simple constriction to prevent bleeding is the object sought, not necrosis of the enclosed vessel.

A wound thus coaptated does not bleed. The serous exudate is at once followed by cell proliferation, and the repair processes supervene with a rapidity understood only by those familiar with the histology of aseptic wounds placed at rest. The tendon-suture thus buried in healthy tissues is first surrounded by leucocytes, then slowly invaded by them. Little by little these are changed into connective-tissue corpuscles, and the tendon is finally replaced by a living band of connective tissue, a reinforcement of vital importance in many wounds, *e. g.*, hernia, laparotomy, suture of tendons, muscles, etc.

The iodoform collodion seal has many advantages. If the structures below have been aseptically joined, there is no subsequent possible infection. It holds the cutaneous surfaces in fixation, retention, and at rest. The repair processes which ensue beneath the seal are so minimized that the scar is in very large measure avoided—a result in itself comparatively a minor matter, not to be overlooked, since a tendon cicatrix is a source of discomfort and generally unsightly. The subsequent bandaging is also minimized, often omitted altogether. In this there is a manifest gain in comfort to the patient, saving of expense in material and care, and, most important of all, the doing away with the still too common custom of making pressure upon the wounded structures for the purpose of seeming coaptation and controlling the escape of blood and serous exudation. Compressed tissues are more or less deprived of the free circulation of the blood upon which their nutrition depends and without which repair is impossible.

The coaptation of the sundered aseptic structures by the use of the buried aseptic tendon-suture, and their fixation, retention, and rest under an aseptic seal without compression, is the corollary to antiseptic surgery, and should be adopted by every competent operator.

In the long series of my experimental studies upon animals in which, under varying conditions, sutures have been buried, I was at first led to believe that the connective-tissue cells of the buried material were in a measure revivified as a graft, so accurately did the living band of connective-tissue replace the implanted suture. More careful research, however, shows that the foreign material is at first encapsulated by cell proliferation, which, little by little, invades it, causing its disappearance precisely in the same way as necrotic tissue disappears after injury, where the surrounding parts are maintained aseptic.

I here call your attention to microscopic slides showing sections of the tissue surrounding buried tendon sutures at varying periods after their implantation. It will be noted that the

thicker portions of the tendon are distinctly traced, even at the lapse of a year or more, centrally imbedded in a firm stroma of healthy connective tissue. Elsewhere I have published at length the clinical reports giving statistical results.

In over two hundred laparotomies, where the abdominal wound has been closed with buried tendon-sutures, applied in separate layers, but two cases of subsequent hernia have been noted. One was the result of infective sloughing, the other occurred after the removal of a large fibroid tumor, where, rather than a hernia proper, the whole abdominal wall was left relaxed and bulging.

In over three hundred operative cases of hernia, where by means of buried tendon-sutures the posterior wall of the inguinal canal has been reinforced and strengthened and the obliquity of the canal restored, more than 90 per cent. have remained permanently cured.

The infection of wounds may never be absolutely prevented, but the experience of surgeons teaches us daily to what a marvellous extent it can be minimized, reduced in aseptic structures, I confidently believe, even in hospital practice, to less than 5 per cent. Indeed, not long ago I examined my own personal experience, reviewing six hundred operations upon aseptic structures, with only 2 per cent. of septic cases—evidence, I think, ample to show the safety of the coaptation of wounds by means of the buried animal suture.

I am confident that at no distant period the use of the buried tendon-suture in aseptic wounds will become indispensable in operative surgery.

CASE OF GUNSHOT-WOUND OF THE BRAIN. REMOVAL OF BULLET; RECOVERY.

By W. E. Parker, M.D.,
New Orleans.

I consider the case that I report to you to-day as being of interest, not so much on account of the operation as on account of the symptoms present. There was no difficulty about the operation, and his recovery was uninterrupted. Patient is a negro musician, aged twenty-eight years, native of New Orleans, personal and family history good. He says that while playing at a negro dance the day before admission "a scrap was started and he caught one of the bullets." August 5, 1895, he walked into the Charity Hospital. An examination of his head showed that he had received a bullet-wound just above the lobe of the left ear, the wound in the skull being about in line with the external meatus. So far as I could see, there were no cerebral symptoms, except rather a slow pulse. The scalp was shaved and the wound dressed antiseptically, and the patient sent to the ward and instructions given to keep him as quiet as possible. August 6th his temperature went to $99\frac{2}{5}°$ in the evening, pulse 54. Otherwise his condition was unchanged. His temperature did not again rise above the normal until the evening of the 8th, when it was 101°. At this time it was found that there was *ptosis,* paralysis of the left side of the face; when his tongue was protruded it was turned to the right; was drowsy, and when awakened seemed startled. When shown objects he could tell their use, but could not call their names. For instance, he would say that a hat was to keep the sun off the head, but could not call it by name. There was no impair-

ment of sensation detected and no paralysis of the arm or leg. It was decided to enlarge the wound and look for the bullet the following day. The night before the operation the scalp was again shaved, well scrubbed with green soap, and towels wet with a 1 to 2000 solution of the bichloride of mercury were bandaged to his head. His pulse the night before the operation was 44.

Operation, August 9th. About noon the patient was anæsthetized, chloroform being used as an anæsthetic. I operated with the assistance of the members of the resident staff. An incision, convex downward, was made, and the skull wound well exposed. A probe was then introduced, and at a depth of about one and a half inches a piece of bone was felt. The wound was then enlarged to about the size of a half-dollar with the rongeur forceps. I then removed five pieces of bone, two quite large, and a thirty-eight-calibre bullet, which was very much flattened. About an ounce of pus and broken-down brain matter was then removed. The abscess cavity was, I think, larger than a walnut. The cavity was then washed with peroxide of hydrogen and a 1 to 4000 solution of bichloride. The cavity was then packed with narrow strips of iodoform gauze, and a few sutures were put in the scalp wound. A thin shield, covered and well padded with antiseptic gauze, was then snugly bandaged over the wound. He took the anæsthetic nicely, and was sent to the ward in excellent condition.

August 9th, P.M. Temperature 99°, pulse 52, patient quiet.

10*th*, A.M. Temperature $99\frac{2}{5}$°, pulse 52, condition unchanged.

10*th*, P.M. No change since morning.

11*th*, A.M. Temperature normal, pulse 58, seems brighter. Wound dressed and looked well.

11*th*, P.M. Temperature $99\frac{2}{5}$°, pulse 58, condition unchanged.

12*th*, A.M. Temperature normal, pulse 59, seems brighter. While he does not do so at once, he can, with an effort, call the names of some objects.

12*th*, P.M. Conditions unchanged.

13*th*, A.M. Temperature 99°, pulse 62. Mental condition unchanged. Wound dressed and a little pus was found. From this time he seemed to improve more rapidly, and his recovery was uninterrupted. The pulse increased about two beats daily until the 20th, when it was 80, after which it did not go above 76. His mental condition was much improved on the 15th, when he was dressed. He could call nearly all objects by name, and when dressed August 17th seemed to be much brighter. His facial paralysis gradually improved, but was slower than the amnesic aphasia.

27*th*. When dressed, the wound was found to be almost healed; facial paralysis considerably improved, as was the paralysis of the tongue.

September 2*d*. A few exuberant granulations along the line of incision were cauterized with nitrate of silver; tin shield left out of dressing. The wound was entirely healed, and patient was allowed to get out of bed on September 13th.

16*th*. He was discharged cured, the facial paralysis being much improved, and the paralysis of the tongue being well. He complained of a "roaring" in the left ear.

He came back to the hospital to see me in the early part of November. There was still slight facial paralysis, and he still complained of the roaring in his ear. Otherwise he was well.

I am indebted to the members of the resident staff for assistance during the operation, but am under special obligations to Mr. J. Barnett, resident surgeon, for assistance in the after-treatment, and for the notes from which this history is written.

As this is intended as a clinical report, I will not go into a discussion of gunshot-wounds of the brain, but simply say that, if I get another such case, I will probe the wound at once, and, if I find the bullet, remove it.

ADDENDUM. The patient came to see me shortly before Christmas. His facial paralysis seemed to be slowly improving, but was still present to a slight degree.

UNINTERRUPTED ANÆSTHESIA IN OPERATIONS UPON THE FACE AND MOUTH.

By Edmond Souchon, M.D.,
New Orleans, La.

All surgeons know the trouble, anxiety, and danger of operating upon the face and mouth on account of the necessity of removing the face-piece through which the anæsthesia is administered so as to uncover the field of the operation and enable the operator to proceed; soon after the removal of the face-piece the patient recovers from the effects of the anæsthetic and the operator has to stop to allow the face-piece to be reapplied; and so on during the whole of the operation. All these drawbacks and delays become very much worse when the patient happens to be one of those unfortunates who respond badly to the effects of the anæsthetic, or who often wake up quickly from a deep anæsthesia and become almost unmanageable. It is a very sorry sight, that of an operation half completed, and an unruly patient bleeding freely and spurting blood all around by the wild movements of his head. His life is then at stake from the impossibility of completely controlling the hemorrhage all the while and of completing the operation in time.

It has been my ill-luck to have once encountered such a case, and the impression was such as to make me determine that henceforth I would control my patient by safe and uninterrupted anæsthesia. Junker's inhaler is not equal to such emergencies, because, unless the bulb is pressed very gently, the liquid anæsthetic is forced into the pharynx. I therefore devised an apparatus to that end, reducing the pain, the bleeding, the shock, and the duration of the operation to a minimum.

The apparatus was called the *Anæsthetizer* or *Anæsthetic Injector*, and its description was published in the *Journal of the American Medical Association.* Its feature was that neither the inlet-tube nor the outlet-tube dipped into the liquid, so that it was impossible for any liquid anæsthetic to be injected into the patient's pharynx. But its drawback was that ether alone could not be used, because it was too freely diluted with air to have a thorough anæsthetic effect. Besides, the mixture of air and chloroform was also rather diluted, and, should a particularly refractory case present itself, there was no positive means of increasing the strength of the dilution at will and as necessity required. These inconveniences have been overcome in the new, improved apparatus. It is an injector, truly, and not an inhaler as we understand it.

In this apparatus the inlet-tube dips into the liquid so that the air in passing out through the outlet-tube is much more charged with the vapors of the anæsthetic. But here at once with this dipping of the inlet-tube came two difficulties. First, upon releasing the compression on the bulb, the liquid was aspirated into the bulb; and, second, the liquid anæsthetic was thrown through the outlet-tube into the patient's pharynx. It required the utmost care and gentleness to avoid these accidents, and there were cases in which the full power of the apparatus had to be brought to bear to maintain the patient uninterruptedly anæsthetized.

These difficulties, therefore, had to be conquered, and they have been by placing a proper valve on the course of the inlet-tube, and by maintaining a certain distance between the level of the liquid in the bottle and the point of exit of the fixed brass portion of the outlet-tube. That distance must not be more than one-half of the height of the receptacle. It took much experimenting and close observation before this was found out. Diaphragms, perforated tube, etc., were used, but in vain, as they all failed when the liquid exceeded a certain amount. Now, a certain quantity is necessary, otherwise it would compel a too frequent replenishing. Of course,

the size of the rubber bulb is an important factor; if too small, it would not inject a sufficient amount of the anæsthetic; if too large, it produced such a splashing in the bottle as to require but a small amount of liquid; otherwise, if too much, the liquid would be injected into the pharynx.

The bulb is $7\frac{1}{2}$ inches in circumference at its middle. The size of the bottle is also to be considered; it is $6\frac{1}{4}$ inches in circumference or $1\frac{6}{8}$ inches in diameter. Therefore the size of the bottle and of the bulb, the amount of liquid in the bottle, together with the distance of the surface of the liquid from the brass and fixed orifice of the outlet-tube, are the correlative factors.

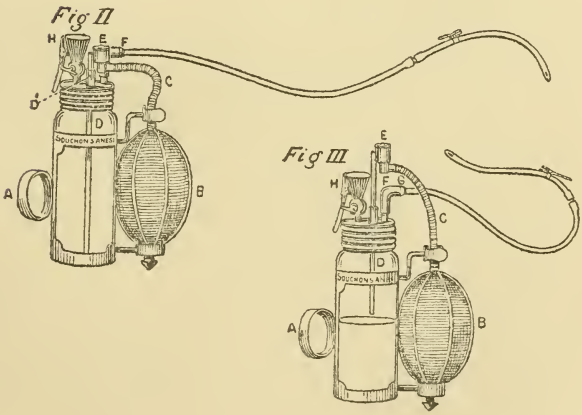
Description of Apparatus. The present improved apparatus is considered perfect in all particulars. It is composed of a glass cylindric receptacle, with a frame supporting a ring, A, for the thumb and a rubber bulb, B, so that it can be worked with one hand. From the bulb originates a rubber tube, C, wrapped with coiled wire to prevent it from bending; it ends in the inlet-tube, D; just at the point of junction at E is a ball-valve which prevents the liquid from entering the bulb when the pressure upon the latter is released. The inlet-tube extends through the liquid anæsthetic to the very bottom; its lower end is bevelled to prevent the orifice from being stopped by coming in contact with the bottom of the receptacle.

This inlet-tube slides up and down through another shorter tube, D^1, so that it can be drawn well up above the level of the liquid anæsthetic, thereby diminishing the strength of the vapors injected through the outlet-tube into the pharynx. This feature makes the apparatus thus set an anæsthetizer of the first model.

There is a circular line on the receptacle showing how much, and no more, liquid anæsthetic should be poured in without running the risk of injecting liquid through the outlet-tube. This line corresponds to the middle of the receptacle from the bottom to the upper surface of the lid. This quantity will suffice to keep a patient anæsthetized for nearly

two hours with chloroform alone, one hour and a half with a mixture of equal parts of chloroform and ether, and about one hour with ether alone. The receptacle is closed by a metallic lid that screws around its neck; a washer makes it air-tight.

SOUCHON'S IMPROVED ANESTHETIZER



From this lid springs the metallic portion of the outlet-tube, F; it originates directly from the under surface of the lid; it is $\frac{1}{2}$ inch in diameter inside and $1\frac{1}{2}$ inches in height; after a *very sharp* curve of 90° it terminates by an orifice of not less than $\frac{3}{16}$ inch. Repeated experiments have deter-

mined these dimensions; any decrease in them increases the chances of sputtering and of injecting liquid into the throat.

To this metallic portion is attached a rubber tube, 30 inches long, so that the anæsthetist can hold himself well out of the way of the operator, leaving more room and play for those concerned in the operation. This tube should be sufficiently rigid not to bend too easily; its interior diameter should be $\frac{3}{16}$ inch. Its last eight inches are formed by an ordinary rubber catheter, No. 13 English, connected to the main tube by a piece of glass or metallic tubing; this nasal segment can be changed to a smaller one when operating upon children. It is provided with a clasp, seven inches from the extremity; this clasps the nostrils and holds the tube in proper position. The receptacle is readily emptied through the outlet-tube after the operation is over.

The lid is provided with a funnel through which the anæsthetic is poured into the receptacle, and through which it can also be emptied after being used. To the edge of the funnel is adapted a clasp, with a long arm that answers for a hook, by which the apparatus can be suspended from a buttonhole; the clasp is to catch on to the cloth of the gown when there is no buttonhole for the hook. Thus the anæsthetist may have both hands free, resting or helping for awhile.

Modus Operandi. When the apparatus is to be used it is first filled with the anæsthetic up to the circular line; that represents two and one-half ounces. The nasal end of the tube is smeared with vaseline. If desirable, an aseptic thin towel in a single thickness can be thrown over the apparatus without interfering with the proper working.

After the patient has been thoroughly anæsthetized by any of the ordinary methods, the face-piece is removed, the tube is introduced through the nose until the clasp is reached, a distance of seven inches, and the clasp is made to grasp the nostril and fix the tube; the end of the tube is then in the *lower pharynx;* that is necessary because, if too high up, the patient, breathing through the mouth, would not inhale a sufficient amount of the anæsthetic.

The anæsthetist places himself to one side or other of the middle of the patient, so as to feel the radial pulse, observe the respiration, and be well out of the way of the operator and his assistants. By compressing the bulb the apparatus is set to work. It injects *only the vapor,* and no liquid anæsthetic, into the pharynx, *regardless of the force used on the bulb.* The bulb, however, should be compressed gradually, not jerkingly, especially if it causes coughing or recoil of the patient. By compressing the bulb more or less quickly and thoroughly the amount of anæsthetic is graduated. As much as possible the compression should take place at the time of each inspiration. This rule compels a closer watch on the respiration.

It takes very little anæsthetic to maintain anæsthesia when a patient has already been well anæsthetized. It is important not to keep on compressing the bulb, if the patient does not require it, or if the stage or procedure of the operation is not painful. Much harm is often produced by all methods by unnecessarily prolonged *deep* anæsthesia, which harm is often passed under the name of shock, exhaustion, etc.

At times, when the patient expires, a resistance is felt upon pressing the bulb; of course, all force on the bulb should be suspended until it is felt that the resistance has yielded and the patient is about to inspire.

Anæsthesia with Chloroform Alone. When chloroform alone is used the effects are at their best, quick, and thorough. Greater care should be exercised when chloroform is used alone. It is then that it would perhaps be prudent to draw the inlet-tube up above the level of the liquid; the dilution is then diminished.

Mixture of Chloroform and Ether. The mixture of equal parts of chloroform and ether is the one I prefer. It has the advantage of the quick and thorough effects of chloroform and the stimulating action of the ether.

Anæsthesia with Ether Alone. The use of ether alone in the apparatus at first excites the throat if the patient has been anæsthetized by chloroform, but this soon passes off, and anæsthesia is well maintained throughout the opera-

tion. Of course, those patients who yield with difficulty to the ordinary methods of anæsthetization will be more troublesome with ether. It requires more ether, more complete and frequent compressions of the bulb, and a closer observation of the inspirations than when chloroform alone is used. We should remember, however, that ether, especially if used alone, is contraindicated in operations about the face, head, and neck, because of the great congestion which it usually produces.

Proportions of Anæsthetic Vapor and Air. Mr. Hermann Fleck, Ph.D., Instructor of Chemistry in the Harrison Chemical Laboratory of the University of Pennsylvania, was kind enough to determine the proportion of anæsthetic vapors and air at each compression of the bulb. When the tube is above the level of the *chloroform* the expelled air contains 8.2 per cent. of vapor; when the tube extends through the chloroform, the expelled air contains 11.9 per cent. of vapor, or about one-third more. When the tube is above the level of the *ether* the expelled air contains 18 per cent. of vapor ; when the tube extends through the ether the expelled air contains 37.2 per cent., or double the quantity. It is noticeable that the expelled air is much more charged, about three times more, by passing through ether than when passing through chloroform, and only about twice when the tube does not extend into the anæsthetic. In all cases, of course, the dilution after it passes from the outlet-tube and is inhaled is from four to six times weaker.

Sundry Remarks. The amount of anæsthetic consumed is very small, about one ounce of chloroform per hour, but two and one-half ounces of ether for the same length of time. There is no external evaporation, and this will be greatly appreciated by the operator and his assistants.

The apparatus works very well when the head is lowered, as in the Rose position.

Should the operation involve the two nasal cavities at the same time, when the tube might be in the way, the tube could be introduced through the mouth into the lower pharynx,

care being taken to prevent the tube being bitten by using a wedge or gag, or by connecting the end with a metallic tube, or, best, with a disinfected male metallic catheter, which the teeth could not crush.

The end of the flexible tube may be connected with the apex of the face-piece or cone placed over the mouth and nose and the vapor of the anæsthetic forced into it. But the face-piece must fit tightly and exclude the air, because the air from the bulb has already diluted the chloroform. For that reason, ether used thus very seldom produces anæsthesia.

Anæsthesia may be produced from the outset without using a face-piece, by introducing the tube at once through the nose into the lower pharynx. This does away with all possible nasal reflexes, the effects of which have been so graphically demonstrated by Professor Laborde, the successor of Claude Bernard and Paul Bert at the College de France, in Paris.

The lower end of the bulb is so arranged as to allow it to be connected with a piece of tubing leading to a bag of oxygen, if desired.

For obvious reasons it is important that all connections should be air-tight.

Care should be taken that no bends or kinks form in any part of the tubes, or this will interfere with the proper working of the apparatus. Sometimes the little ball-valve in the tube becomes adherent to the margin of the orifice inside and the bulb does not empty; by striking on the tube at that point the valve becomes loose again.

The bulb is detachable and may be removed whenever this becomes necessary, that is, when it loses its firmness and elasticity, and when the valves get out of order. This is determined by pressing tightly the tube of the bulb and compressing the bulb; if the air is then expelled it is because the valves are out of order. The manufacturer can supply a new bulb by mail.

Every part of the apparatus can be taken apart to be thoroughly cleaned and sterilized.

The apparatus is most useful also in operations about the head and neck, allowing the operator and his assistants more room, and sparing to all around the unpleasant odor of the anæsthetic.

The device has been used in the Charity Hospital of New Orleans by about all the surgeons, Drs. Matas, Delaup, Martin, Bloch, etc., also by Dr. De Roaldes in the Sanitarium. I have used it for Dr. Lange, in New York, in the presence of Drs. Halsted and Fenger, and in the Jefferson Clinic, in Philadelphia, for Drs. Keen and Hearn, in the presence of Drs. Da Costa and Barton. All these surgeons expressed themselves well pleased with the results.

No ill effects have ever resulted from the direct contact of the vapors of the anæsthetic with the mucous membrane of the pharynx or larynx.

Conclusions. This apparatus is the *only one* with which there is *no risk of injecting liquid anæsthetic in the pharynx regardless of the force applied to the bulb.* Its safety, simplicity, compactness, portability, efficiency, and easy management speak for themselves.

Its use results in a great saving of time, pain, bleeding, and shock to the patient, thereby contributing materially to the saving of life in operations which for the most part are long and bloody, and often bring the patient to death's door. It also provides a great saving of mental strain to the surgeon, who can proceed rapidly and uninterruptedly with the operation.

VAGINAL INCISION AND DRAINAGE.

By J. W. Long, M.D.,
Richmond, Va.

In presenting this paper to the Fellows of this Association I am aware that I bring nothing new to my hearers, but the procedure herein advocated is of such incalculable value, with clearly defined indications, that I wish to hear you discuss it and to send it forth on its life-saving mission. For, surely, if there is any operation which snatches a woman from the very jaws of death this one in many instances does.

Indications. In those cases of pelvic inflammation in which there is an effusion of serum or collection of pus anywhere in the pelvic tissues, outside of the tubes, the indication is to *drain*. If the serum or pus or blood is confined within the tubes, the only logical thing to do is to remove them. To drain tissues that can be safely and easily removed is folly and mere pretense.

In this connection it should be remembered that it is the sepsis *outside* of the Fallopian tubes that causes systemic infection—that kills. I desire to emphasize this. When the tubes become infected, nature sets to work to seal the fimbriated extremity and to coat over the entire tubes with plastic lymph. If she succeeds in doing this before the infection passes through the tube and reaches the peritoneum, the patient is safe from all immediate danger. We are familiar with the trouble a "leaky pus-tube" causes.

In support of the assertion that septic matter confined within the tube does not cause systemic infection, I recall a case of double pus-tubes complicating a fibroid uterus which I removed at the Old Dominion Hospital recently. The right tube was distended with pus to the size of the forefinger.

The left tube was adherent to the ovary so intimately that it was impossible to say where the tube stopped and ovary began. They constituted a true tubo-ovarian abscess, containing a half-pint of pus. The amount of pus and the nature of the fusion between tube and ovary show that it must have existed months and probably years, yet there was no sepsis.

On the other hand, a small amount of septic infiltrate or fluid, whether in the peritoneum or cellular tissue, will produce profound sepsis. It is in these cases that vaginal incision and drainage are indicated. We operate not to remove diseased tissues, but to drain away septic poison. The more acute the sepsis, the greater the need for drainage. Also, in those cases in which the patient has "weathered the storm" of the acute symptoms and the case has become more or less chronic, with hectic emaciation, an operation is as urgently demanded.

PER VAGINAM *vs.* ABDOMINAM. It may be asked, "Why the vaginal incision in preference to the abdominal?" There are several reasons:

1. Vaginal drainage is ideal drainage. Does the vagina not carry away the waste of each monthly period and puerperium? The very structures of its epithelial lining, many-layered and resistant, make it specially suitable for a drainage canal. The vaginal incision taps the septic focus at its base. The drainage is down-hill. Gravity aids capillarity. There is no coffee-pot spout arrangement that requires to be sucked out with a long nozzle-syringe at stated intervals.

2. There is less danger of further infection. To drain septic matter through the abdomen is always hazardous, no matter how careful your aseptic precautions.

3. The operation per vaginam is much easier to do.

4. There being little shock attending the operation, it may be done when the patient is in extremis. I have performed this operation when the patient was too feeble to take an anæsthetic. It is truly a life-saving operation.

DANGERS. The dangers, other than those incident to anæsthesia, are twofold:

1. Opening a viscus or bloodvessel. This can be avoided by care. I always estimate the thickness of the upper part of the recto-vaginal septum by one finger in the rectum and one in the vagina. The median incision just behind the cervix, very short and just deep enough to go through to the vaginal wall, will obviate the danger of opening either viscus or vessel.

2. The second danger is that of opening the peritoneum, thereby infecting it. The same care and thorough asepsis will obviate this danger. I have opened the peritoneum while attempting to open a septic accumulation that was situated laterally, without doing harm.

TECHNIQUE. I need scarcely speak of the technique to this audience. I prefer the dorsal position. The vagina is thoroughly cleansed. If there is septic endometritis, the uterus should be curetted and packed, *provided* the patient can stand the additional shock and the uterus is readily accessible, neither of which conditions is always present. The cervix is now pulled forward and steadied with a tenaculum. At this juncture I sometimes employ an aspirating needle to determine positively the presence and location of fluid, but this is not necessary in every case. With a scalpel a very short incision is made in the median line immediately behind the cervix. Of course, if there is evidence of softening or pointing elsewhere, the incision should be made accordingly. As soon as the vaginal wall is incised the forefinger is introduced into the opening, and while the mass is steadied with the other hand on the abdomen the finger is cautiously bored into the tissues. If a cavity is entered, the finger is withdrawn and the contents allowed to escape. If only sodden, infiltrated tissues are felt, the finger is carefully forced into the infiltrated area, making drainage-tracks for the septic infiltrate. It is immaterial as to whether the abscess or infiltrate is *intra-* or *extra*-peritoneal; the procedure is the same. I have palpated with the exploring finger the adherent coils of intestines that formed the upper and back wall of an abscess, and I have palpated the distended tube from between the layers of the broad ligament. Whether free

fluid or infiltrate is found, the parts are flushed with normal salt solution, and packed with iodoform gauze; in abscess cases a rubber drainage-tube may be added.

When in doubt about the exact location of the effusion I have opened the abdomen and located it; then, with one hand in the abdomen acting as a guide, with the other I made the vaginal incision.

I append a brief report of two of the worst cases of this kind for which I have operated:

Case I.—Mrs. W. P., residence Waynesboro, Va. I was called to see this case in June last by the attending physician, Dr. C. A. Fox. The patient gave the following history: Married; aged thirty-six years; three children, youngest six years old. Two and a half years ago had a pelvic abscess that broke into the rectum. A year and a half ago she had cervicitis, which Dr. Fox treated and greatly benefited by local applications. On the 30th of last March (six weeks prior to my visit), the attending physician was called to see her and found a tender mass on the left side of the pelvis. She had pelvic pain and fever. This mass has slowly but constantly increased in size, till now it nearly fills the entire pelvis. The temperature has ranged from normal to 102°; pulse very frequent and feeble. Recently she has had profuse and exhausting night-sweats. She is greatly prostrated and appears very sick. An examination reveals the mass situated more to the left superiorly, but below it fills the entire pelvis. Per rectum the mass is felt pressing low down. The uterus is pushed upward and forward, and the posterior vaginal fornix is bulging. No evidence of pointing can be felt or seen, but the mass has a doughy, œdematous feel.

The patient was so weak that an abodminal section was out of the question, so we determined to operate per vaginam. Under ether the presence of pus was demonstrated by the aspirator, then a short incision was made in the posterior vaginal fornix, when 120 c.c. of sero-pus slightly tinged with blood escaped. This was not contained in a well-defined cavity, but was like an infiltrate. The escape of this fluid reduced

the mass and greatly relieved the pressure on the rectum. Now, with the forefinger in the opening and up between the layers of the broad ligament, and the other hand on the abdomen, the left tube, distended to half the size of one's wrist, could be easily palpated. The wound was flushed with salt solution and packed with iodoform gauze. I advised the doctor that when she recovered from this operation and gained strength that he should bring her to the hospital and I would remove the tube by an abdominal section. I expected this woman to get better after what I did, but to my surprise she made a beautiful and uninterrupted recovery. Her temperature and pulse at once fell to normal, the night-sweats stopped, and, in a word, she got well. Recently I wrote Dr. Fox and asked him to examine Mrs. P. and report to me her condition. His reply is so interesting in this connection that I venture to insert most of it.

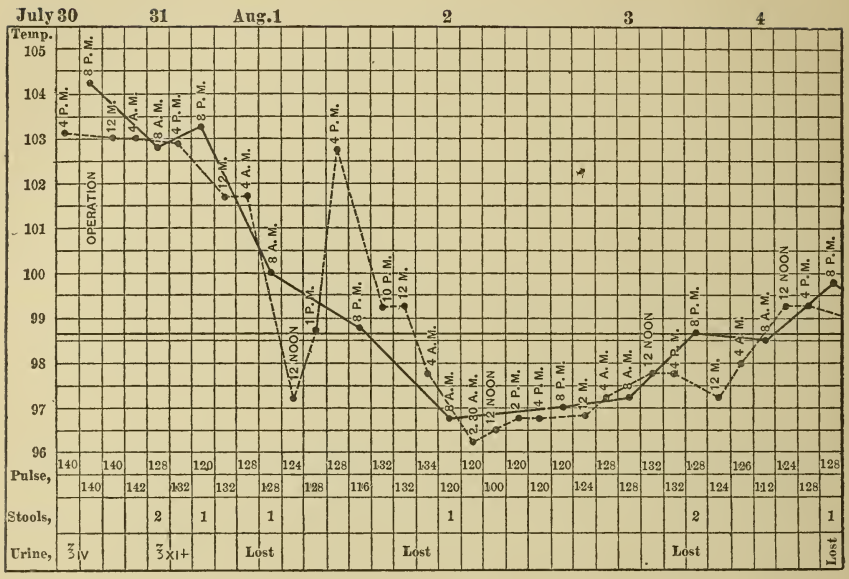
WAYNESBORO, VA., Oct. 31, 1895.

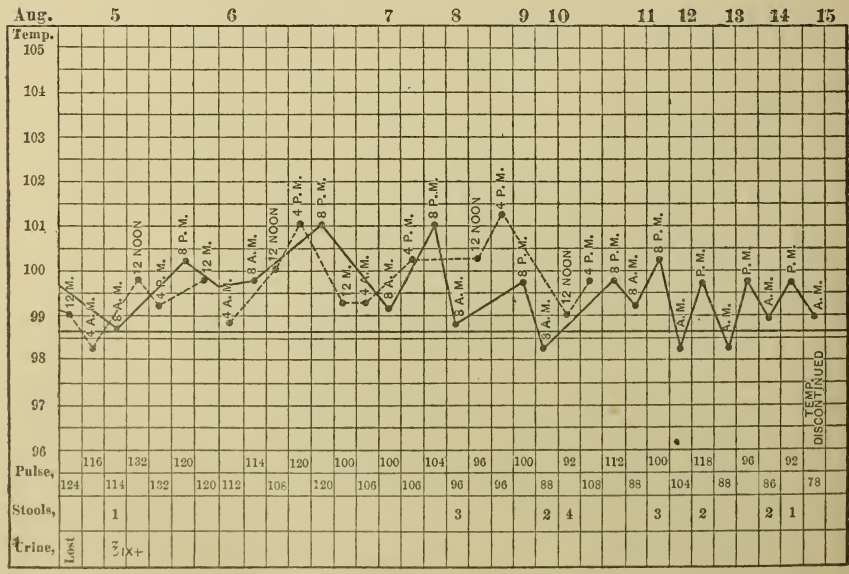
DR. J. W. LONG,
RICHMOND, VA.

DEAR DOCTOR: I examined Mrs. P. and find some tenderness in the region of the left tube, and a broad band, which is hard, and which I suppose is nature's wall to protect the cavity when she had the abscess. It is tender only to firm pressure. She is very fat and well. The uterus is tender, due to the lacerated cervix, I suppose. This ought to be operated on, as it keeps up a more or less cervicitis. Would you advise the operation, or would it be better to wait until nature removed the results of the abscess or this has been removed by operation? She is so well she would not have any operation done unless there is danger of her having another abscess.

Fraternally yours,
A. C. FOX.

CASE II.—This patient, Fanny H., a mulatto woman, was sent into my service at the Old Dominion Hospital by Dr. B. C. Keister, of South Boston. She entered the hospital in July. She has been married eight years, and pregnant only once, four years ago, when she was delivered of a still-born child. She dates her trouble from that time. For more than a year she has been quite sick, and for three months bed-





Temperature-chart in Case of Fanny H.

ridden, suffering a great deal. Her temperature when examined was 104°; pulse 140 and very feeble. The husband stated that she had had fever for over a month. She was greatly emaciated and prostrated. The abdomen was distended and exquisitely sensitive, especially its lower half. A mass could be felt filling the pelvis and the lower abdomen to near the umbilicus. The cervix was pushed very high in front. I stated to my staff that I would not operate on her, she was so near dead; but I put her on the examining-table with the view of making some further observations. After a thorough examination I was so sure that she was suffering with sepsis due to pelvo-abdominal inflammation that I determined to make an effort to save her. An abdominal section would have killed her sure—even general anæsthesia she could not have stood; so after applying cocaine to the posterior vaginal fornix I made a very short incision and bored the forefinger into the tissues. On withdrawing the finger, about 50 c.c. of pus escaped. I could still feel the large mass, so I cautiously pushed the finger about in the tissues and opened into another deposit of 350 c.c. of sero-pus. Even then I could still feel a part of the mass that was supposed to be a distended tube. I did not penetrate any further, but flushed out the wound and packed it with gauze. The manipulations were so painful that I was betrayed into giving her a few whiffs of chloroform, and afterward bitterly regretted it, for her urine became very scant, with albumin and casts. My colleague, Dr. Johnston, was present and kindly examined this case. This woman's temperature fell to 96.2°, and for two days she was semi-comatose and delirious. On the third day she was a little better, and to my great delight made a splendid recovery. I saw and examined her last week. She is fat and practically well. The uterus is freely movable; there is little pelvic tenderness. On the left side I can still feel the enlarged tube, but not one-fourth the size it seemed to be four months ago. If it ever troubles her I shall remove it, which can be done with safety *now;* to have done so in July, when she first came to the hospital, would have sealed her doom.

ENDOMETRITIS.

By James T. Jelks, M.D.,
Hot Springs, Ark.

The uterine mucous membrane of the body may be called a lymph-gland or lymphatic surface. This lymph-surface communicates freely with the lymph-spaces which surround the bundles of muscular tissue of the uterus, all these combining into large lymph-vessels which run along the side of the uterus and in the folds of the broad ligament.

The mucous membrane is dotted all over with utricular glands which dip down between the fibres of muscular tissue and are lined with one layer of cylindrical epithelium. Inflammation of this membrane means infection with some one of the pathogenic micro-organisms, just as inflammation elsewhere means infection.

We do not believe in such a thing as simple or catarrhal inflammation dissociated from some pathogenic organism. It is true that exposure to cold may be the exciting cause by creating a "locus minoris resistentiæ," and thus produces an infection atrium through which the ever-present pathogenic microbe may enter. This being true, we may readily divide inflammation of the uterus into septic and specific. The septic form is produced by the streptococcus, the staphylococcus, the bacillus tuberculosis, the bacillus coli commune, and the specific form by the gonococcus of Neisser. Bearing in mind the experiments of Kuster, Winter, Dorderlein, and Laplace, which demonstrate that the vagina is the home of fourteen varieties of micro-organisms, six of which are pathogenic, we may readily understand the ease with which infection of the uterine mucous membrane takes place.

Infection with the streptococcus of Fehleisen or Rosenbach is practically confined to the puerperal period, either before or at term, and is always acute in its character and results. Of this variety we do not propose to speak, but rather to confine ourselves to the chronic form which is produced by the other varieties of pathogenic germs.

From the post-mortem examinations at the Johns Hopkins University, as reported by Whitridge Williams, we have a demonstration that about 10 or 12 per cent. of the cases of inflammation of the uterus and tubes are produced by the bacillus of tuberculosis. The bacillus coli commune but seldom causes this trouble, but it has been occasionally found. This gives us about 85 or 90 per cent. of the cases produced by the staphylococcus and the gonococcus. From my observation probably 35 per cent. are produced by the gonococcus and the remainder by the grape-coccus.

These latter, being always in the vagina, may readily gain access to the uterus in a variety of ways. During the puerperal period, by reason of the presence of the lochial discharge and the fact that these patients are lying down and that the vagina is filled with the débris, we may very readily understand why infection of the uterine mucosa takes place. Add to this the fact that many physicians do not realize the importance of attending every lying-in woman in the light of a wounded patient, and that he may infect this decomposing lochia with his soiled fingers, we may be surprised that infection does not occur more often than it does.

Aside from the puerperal state, the physician, whether aseptic or not, may carry infection into the uterus by means of the instruments during an examination. He may even sterilize his instruments, and if he fails to cleanse the vagina and cervical canal he may, with his sterilized instruments, carry into the uterus some of the pathogenic organisms whose home is in the vagina and cervix.

So far as the purposes of this paper are concerned, we may regard all cases of chronic inflammation in the same light; that is, the symptoms are practically the same whether pro-

duced by the staphylococci, the gonococci, or the bacillus of tuberculosis. They all invade the mucous membrane, the utricula glands, the lymph-spaces surrounding these glands, and produce the characteristic evidences of inflammation of the uterus; and, by the way, no man can say at the bedside that the disease is confined to the endometrium or to the body of the uterus, and hence when I speak of inflammation of the uterine mucous membrane I do not mean that the process is confined to it, but rather use the term as including metritis and endometritis, the one, sooner or later, leading to the other.

The symptoms of the disease you are all familiar with, and hence I will not weary you with them.

If the microscope reveals the presence of the bacillus of tuberculosis, hysterectomy should be made at once; this should include, at the same time, the tubes and ovaries. I do not believe any other treatment will cure these patients or protect them from subsequent invasion of the pertioneum by the bacillus, thus producing a tuberculous peritonitis.

Bearing in mind the formation of the mucous membrane lining the uterus and its glands, and that these glands are surrounded by lymph-spaces which communicate freely with the lymph-spaces which surround the muscular fibre, you will readily understand that endometritis means also metritis. Hence you have symptoms produced from both sources. Radical treatment is preferable to the palliative, and every chronically inflamed uterus which is discharging pus should be treated thoroughly, and we should waste no time in the various applications of the vagina, provided the woman wants a cure and will submit to the proper treatment. In most of these women we have chronic constipation, and this state of affairs may exist even though the patient has a movement from the bowels every day. The canal may be full, and when food is taken into the upper end there may be a discharge from the other some time during the day; so an operation from the bowels every day is no evidence that the patient is not suffering from constipation and poisoning from

the absorption of ptomaïnes or leucomaïnes from the intestinal canal. Hence we commence the treatment of this class of patients with a cathartic, and keep it up, every day, even after the canal has been thoroughly evacuated, say four or five or six times. We prescribe laxatives, preferably in form of Hunyadi water or Sprudel salts. The constipation results in a stercoræmia, this latter in malaise, general inaction, and hence to lack of exercise, leading to deficient appetite and defective elimination through the kidneys. As a result, many of these patients are suffering from auto-infection by absorption from the intestinal canal, as well as from the metritis or endometritis, and hence I am a firm believer in giving all these cases a thorough purgation, to be followed daily by laxatives.

We should also institute diligent inquiry into their mode of living and of eating; all drinks, whether of water or milk, or tea or coffee, should be prohibited while eating. The physiology of the digestion of starch should be explained to them, so that they may correct any error existing in this line, and that they should be encouraged to drink freely and largely of pure water. With these details attended to the main treatment should be instituted. An anæsthetic is not imperative, but should be given. Then the vagina should be scrubbed with green soap and water, followed by sublimate solution 1 : 3000, and the cervix cleansed with same solution; the uterus, steadied with the volsella, should be dilated with some one of the bivalve dilators in preference to the sounds. Having dilated it sufficiently, it should be washed out with sterilized water through a double uterine catheter and then curetted with a sharp curette. It will not do to use a dull instrument. We have to remove the entire endometrium, and hence should use only some one of the different forms of the sharp curette, and its application should be thorough, going down to the submucous connective tissue. With ordinary care there is no danger in using this form of curette, and the dull one is practically useless.

Having gone over the entire surface, the intrauterine

douche should be again used and the cavity washed out with either sublimate solution 1 : 5000 or a 2 per cent. solution of carbolic acid, and after this the uterus should be injected with pure tincture of iodine. We should now wipe out the cavity with strips of iodoform gauze and then pack it with the same material. It should not be packed in as a dentist packs a tooth, but applied loosely. It thus serves two purposes, viz., it places in contact with the endometrium the iodoform and at the same time provides capillary drainage; in other words, we should make use of that great principle in surgery, viz., drainage. This gauze should be allowed to remain in the uterus for two days, or longer if in the judgment of the operator it is desirable, and then removed and reapplied. When removed, thorough precautions should be taken that we do not infect the organ as we refill it with the gauze. Ordinary cases of chronic inflammation of the uterus will yield to this form of treatment in three to six weeks. Contrast this with that other plan which kept the woman coming to the doctor's office until both patient and doctor were wearied. If no infection occurs during the treatment the mucous membrane will be reproduced in about two months.

We should bear in mind the fact that every case of inflammation of the uterus may extend to the Fallopian tubes, and hence to ovaritis and pelvic peritonitis, to hydro- or pyosalpinx, and so-called ovarian abscess, or to a general peritonitis. To prevent these complications every case should be submitted to a radical treatment with the curette and packing with iodoform gauze. If this does not cure, then resort should be had to a trachelorrhaphy if the cervix is lacerated, or to amputation of the latter by either Schroeder or Markwall's procedure.

Conclusions. That metritis or endometritis are practically the same disease. That endometritis is the result of infection with pathogenic micro-organisms which are carried into the uterus during the puerperal state, or by means of examinations with unclean instruments, or by means of ster-

ilized instruments used in a vagina which has not been disinfected; or by the gonococcus in about 35 per cent. of the cases, or by the bacillus of tuberculosis in 12 per cent. That all cases "should be treated in the light of their possible consequences," viz., salpingitis, ovaritis, and peritonitis. To prevent these latter results every case should be submitted to radical treatment by means of the sharp curette and drainage with iodoform gauze.

IS HYSTERECTOMY FOR PUERPERAL INFECTION JUSTIFIABLE?

By R. R. Kime, M.D.,
Atlanta, Ga.

At the present time this is an important question and of interest to the medical profession in general. While asepsis and antisepsis have rendered incalculable service in the prevention of puerperal infection, such cases occur, and we are compelled to devise means for their relief.

Before adopting any line of treatment or surgical measure in these cases, it should be established that they are life-saving commensurate with the risks incurred by their use.

Before hysterectomy can be adopted as a justifiable measure in puerperal infection it must be demonstrated that it will save lives that cannot be saved by less heroic treatment.

From inquiry of eighteen leading gynecologists and obstetricians, I find five opposed and thirteen in favor of the operation.

Out of fifteen cases operated upon eight have died, making a death-rate of $53\frac{1}{3}$ per cent.

In most instances it is said that the operation is done as a last resort in severe cases, and with the oft-repeated remark, "the patient would have died without it." While this may be true, all of us have seen such patients get so low and yet recover that I have lost confidence in such positive prognoses.

The advocates of hysterectomy advise it for disease limited to the uterine body, such as septic metritis, multiple abscesses in uterine wall, uterine thrombo-phlebitis, and gangrene of uterus.

Pyosalpinx, ovarian abscesses, etc., are the secondary localized results of puerperal infection, hence operations for such do not come within the scope of this paper.

The fact that a patient recovered from hysterectomy is not conclusive evidence that the operation was justifiable. A uterus filled with putrid material can be removed and patient recover in the great majority of cases, yet the condition does not justify such measures. The same can be said of all cases of putrid infection, for they can be relieved by less heroic measures and without sacrifice of pelvic organs.

In septic infection when *serious constitutional* symptoms develop, the process in *most* cases is no longer local, and cannot be removed by hysterectomy, the germs and septic material having extended beyond the uterus, tubes, and ovaries into the bloodvessels, lymphatics, pelvic cellular tissue, and the general circulation. In a few cases the process may be sufficiently local to justify hysterectomy, but to diagnose such a condition is a difficult task. None but an expert can do so, and they are frequently mistaken in diagnosis.

Most gynecologists that favor hysterectomy advise to curette and tampon the uterus, and if the patient does not improve or grows worse then remove the uterus.

If this is a correct guide as to the indications for hysterectomy, then it is not a question of diagnosis, but failure in a certain line of treatment to give relief that demands the sacrifice of the uterus. In severe cases of septic infection, to curette and tampon the uterus, then perform hysterectomy, the death-rate would be so high as to condemn the operation, and many lives would be lost that could be saved by less heroic means.

To be more explicit, I will deviate from the title of this paper and enter briefly into the pathology and treatment of puerperal infection.

It is of two general varieties, viz.: 1st. Putrid infection or sapræmia. 2. Septic infection or septicæmia.

The first is a local infection due to decomposition of uterine contents by putrefactive bacteria only, without migration of the bacilli, not contagious, non-progressive by invasion, due to absorption of ptomaïnes, not inoculable.

In sapræmia, putrid infection, remove the putrid material

from the uterine cavity, irrigate, disinfect, drain, and 99 per cent. of cases will recover. Hysterectomy would relieve these cases, but it would be criminal to sacrifice the generative organs when such cases can be treated more successfully and with fewer deaths by less heroic measures.

The second class is due to germ development, their rapid migration and invasion of new tissue even entering the general circulation; if at first local, soon becomes constitutional, highly infectious, and inoculable from case to case. The contagious principle is destroyed by boiling, putrefaction, and germicides.

In the treatment of septic infection we have a more difficult problem to solve.

The septic germs soon extend beyond the endometrium, invading its muscular structures, the lymphatics, the blood-vessels, etc., and cannot be removed by ordinary surgical measures, and very doubtful if hysterectomy could completely remove the infected tissues in severe cases.

In putrid infection the curette and tampon might relieve the patient, but in septic infection I do not believe such treatment is advisable, except it might be within one or two days after labor, where placental tissue has been left in the uterine cavity.

It is drainage and elimination we desire in these cases, not obstruction. What surgeon of repute would tampon an abscess cavity through a very small opening without using a drainage-tube, letting the gauze remain two, three, or four days, especially when there is broken-down tissue, débris, and septic germs present in abundance.

After delivery nature establishes a process of elimination by a current flowing from the uterine cavity, the uterus and vagina being the main trunks of a sewer, the lymphatics, bloodvessels, and uterine sinuses, its tributaries, obstruct the main channel, and what is the result? Who would think of filling the trunk sewer of a city with gauze and expect free drainage, even if done antiseptically after scraping out and flushing it? Yet we are advised to curette the uterus and fill

it with gauze, damming up nature's channel of elimination, thus preventing the throwing off of effete material from the placental site, endometrium, and lymphatics—obstucting the egress and retaining the phagocytes ladened with germs and toxins, completely annulling phagocytosis, producing the very condition we should endeavor to prevent. Some will say only tampon after a thorough curetting; so much the worse, you have broken down and destroyed nature's barrier, opened up new surfaces for absorption, and favor that absorption by obstructing nature's method of elimination. I regret to say it, but it is my conviction that the curette and tampon indiscriminately used will kill more patients than they will save in septic infection.

That their indiscriminate use manufactures cases for hysterectomy. In the treatment of these cases imitate nature as far as possible and establish a current of free drainage.

If any foreign substance is in the uterus remove it with the forceps, wounding the endometrium as little as possible; irrigate the uterine cavity thoroughly with an antiseptic solution and introduce as large-sized rubber drainage-tube as the os will admit. Repeat irrigations and cleansing of the drainage-tube at least once or twice in twenty-four hours. Do not neglect occasional use of salines and calomel if needed, with systematic use of quinine, strychnine, tonics, and good nourishing diet. Quinine certainly has a specific action in these cases in checking germ development and controlling the chills which accompany these cases. I venture to say that where this line of treatment is properly carried out it will save more lives than the combined use of the curette, tampon, and hysterectomy. While I have in a great measure condemned hysterectomy in puerperal infection, I admit it has a limited field of usefulness in septic metritis, multiple abscesses in the uterine wall, thrombophlebitis, if it were possible for us to be positive in our diagnosis, but if in doubt I prefer drainage.

Unless future operative work gives better results, even this limited justification of hysterectomy must be abandoned.

In the above collection of cases I am satisfied, if the opera-

tion be limited strictly to severe cases of *septic infection*, rapidly progressive and not in its secondary results, the death-rate would be 80 or 90 per cent. of cases operated upon. Even a death-rate of 50 per cent. is sufficient to condemn the operation. The proper use of the drainage-tube will not only save more lives, but the uterus, tubes, and ovaries will be preserved for future usefulness, and the surgeon's conscience left more at ease.

THE SURGERY OF THE PROSTATE GLAND.

By George Foy, F.R.C.S.I.,
Dublin, Ireland.

On February 20, 1806, Mr. Everard Home read a paper on "Enlargement of the Prostate Gland" before the Royal Society of London, from which date the scientific treatment of enlargement of the gland may be said to have commenced.

Long prior to this, however, diseased conditions of the gland had attracted the attention of anatomists and surgeons. The thirty-seventh letter of Morgagni deals with the question of prostatic calculi, and he quotes cases which occurred in the practice of well-known surgeons, among others naming James Douglas, and writes of the secondary effects of enlargement thus: "When sabulous and viscid matter abounds, particles of them remaining after the last drop of urine has been expelled may sometimes concrete at the part where a hollow is occasioned by the projection of the prostate gland in the male, and of the corpus glandosum in the female, and here it may acquire an annular form as if it had been cast in a mould"—a condition of affairs which actually came under the notice of Sir Henry Thompson more than one hundred years after. The forty-sixth letter of the marvellous collection gives the case of an old man, the middle lobe of whose prostate gland resembled a pear, and he remarks: "How far the prostate gland is liable to excrescences which raise themselves up from its superior circumference, or all round, or from a certain part, into the cavity of the bladder, it would be very easy for me to show." He quotes from Fantonus the case of a man, sixty years of age, who, "having died, after a long-continued and troublesome stillicidium of urine, had the prostate not only purulent, hard, and immoderately tumid, but

protruded far and wide, toward the lower part of the bladder; also the capacity of the bladder was very small and the membranes were very thick." Troublesome retention of urine occurring occasionally is particularly dwelt on by Morgagni as a symptom of enlarged prostate. Indeed, dysuria is mentioned in the thirty-first aphorism of Hippocrates as one of the troubles of old age. As we read the clinical pictures of the suffering entailed by an enlargement of the gland, we cannot help being surprised to find how little the older surgeons did to relieve this very common and distressing disease. Although the general level of surgery was low in the 15th, 16th, 17th, and 18th centuries, there were withal "giants in those days," who found light in darkness. In 1490—a date prior to the memorable first journey of Columbus—the kidney was excised from an archer of Baguolet; in 1560 Rouset repeated the operation; and in 1652 Domenico Marchetti, of Padua, performed the operation on Mr. Hobson, H.B.M.'s Consul in Venice. "The very excellent Fantonus" excised the spleen of a woman, "who lived for five years after the operation; and, having conceived and brought forth in the meantime, least anyone should doubt of the extraction of this viscus, no spleen was found in any part of the body upon dissection; only cicatrices appeared in the neighboring parts, to which it is wont naturally to adhere."

Colot, in 1475, by permission of Louis XI., performed suprapubic lithotomy successfully as an experiment on a criminal, and Pierre Franco performed the same operation in 1556 on a child two years old. Scultetus, in 1661, pictures and describes laparotomy; suture of the peritoneum and the use of the catheter; the introduction of which instrument, for the relief of prostatic retention, Sir Benjamin Brodie considered was due to Sir Everard Home. Mary Donnelly, "a handy woman," a native of the little village of Clogher, in the County Tyrone, in January, 1738, successfully performed Cæsarean section on Mary O'Neale, of the same place. Percival Pott opened the longitudinal sinus to relieve a headache; and O'Halleron, of Limerick, slit the *corpus callosum* from its

anterior to its posterior border, simply to test the truth of Decarte's theory as to its being the seat of the soul. The history of the operations for aneurism by Antyllus, Anel, and Hunter, does not need telling. But the memory of John Bell suffers from the greater glory attained by his pupil, the distinguished Virginian, McDowell, the ovariotomist, whose courage, dexterity, and self-possesion in the presence of danger had, I think, their genesis in the example of his great teacher, who, to remove foreign bodies or liberate purulent fluid, did not hesitate to cut freely into the pleura and even into the pericardium.

Littre, whilst yet a young man, performed cholecystenterostomy, and McKeever, of this city, in 1824, successfully removed eighteen inches of small intestine (ilium) from a parturient woman. No cavity or viscus escaped the surgeon's knife—the bladder was opened by Pierre Jacques, by Rau, by Chaselden, the prostate gland was torn to shreds by the Marian lithotomy operation; and, as late as 1816, Sanson revived the old method of cutting into the bladder from the rectum.

How can we explain the fact that operative interference for the relief of retention due to enlargement of the prostate—so common, so painful, and so dangerous—was neglected? Two things, I think, contributed to this neglect—(*a*) the theory ascribed to Hippocrates, that wounds to membranes were fatal, and (*b*) the dread of urine coming in contact with the fresh wound; and, we may add, the dread of wounding the peritoneum, which surgeons had at the beginning of the century. All attempts to reach the bladder by the suprapubic method incurred the risk of wounding the peritoneum. The membrane, occasionally, was found to fall over the anterior surface of the bladder. Kirby found and described such cases; but the surgeon who would cut down on an iliac aneurism and remove the peritoneum from the bloodvessels would, nevertheless, dread a fold of peritoneum on the bladder-surface, and by preference would open the bladder through the rectum. It is hard to understand this state of mind.

John Hunter came very near revolutionizing the surgery of the bladder, when he tapped the viscus and afterward cut down on the canula, sutured the wound, and allowed the bladder to fall back into the pelvis. Hunter was, however, in no mood for pondering on the operation and its success; he remembered only the fact that, acting on the diagnosis of a friend, he had made a mistake. When Hunter died, the last hope of progress for many years was lost. Brodie, who made the dissections for Sir E. Home, could only propose tunnelling the enlarged prostate—an operation which quickly fell into discredit when Mr. Barnsley Cooper, in 1851, published his case of fatal hemorrhage following the perforation of a diseased third lobe. A step in the right direction was, however, made when Sabatier recommended a long catheter "with a very long beak" in cases of prostatic disease. Hoping to avoid the trouble of frequently passing the instrument, M. Cruveilhier recommended that the catheter be retained in the urethra, and, practically, nothing more was done for many years. Patients were condemned to a life of catheterism—a condition which to the leading surgeon of the day, Sir B. Brodie, appeared very tolerable.

Brodie died in 1862, when anæsthetics were being universally used; and the rising generation of surgeons, no longer trammelled by authority and armed with chloroform, commenced to seek for some more promising remedy than the prostatic catheter.

Dieulafoy, in 1870, introduced his aspirator, and who has not felt the advantage of having such a prompt method of relief for the poor agonized victim of an enlarged prostate? How different from the oft-repeated attempts to pass catheters small and large, and all the delay and inconvenience of getting the patient into a hot bath and so forth. Aspiration is, however, simply a palliative measure. M. Mercier, whose prostatic catheter is so well known, was perhaps the first to recommend prostatectomy, which he performed by passing his *inciseur* along the urethra until it came to the bar of tissue which passes between the lateral lobes of the gland. The

operation was little more than a modified urethrotomy, but it was a step in the right direction, one fruitful of good—"a cloud no bigger than a man's hand," yet destined to fall in showers of blessings on suffering humanity.

To Gouley, of New York, is due the credit of recognizing that incising the prostate was insufficient, and to carry out his idea he devised an instrument with which he punched out obstructive portions of the gland. Mr. Harrison's paper, read at Copenhagen, in 1884, on the treatment of prostatic obstruction by section of the gland, was a marked advance, and told that the current of surgical thought was in favor of radical measures being adopted.

The advantage of aseptic surgery had now come to be recognized, and the peritoneum no longer frightened surgeons. Dittel, in 1885, performed suprapubic prostatectomy, and he was followed in the innovation by Trendelenburg, Belfield, Schmidt, and McGill, of Leeds. Three cases by the latter were brought before the Clinical Society of London on November 11, 1887. After the usual suprapubic cystotomy, "the growth was removed partly by tearing with forceps, and partly by cutting with scissors, or with a strong cutting instrument, which he (Mr. McGill) devised for the purpose. The same volume of the Clinical Society's *Transactions* (vol. xxi.) contains an account by Sir Henry Thompson of an enormous prostate, which so inconvenienced the patient, a man sixty-four years old, as to make his life miserable. "He passed all, or nearly all, his urine by catheter, requiring it every hour and a half, night and day." This case is of more than ordinary interest, for in November, 1885, Sir H. Thompson had by a perineal incision made a digital examination of the bladder, divided a stricture by internal urethrotomy, "so as to pass a No. 15 (English size) metal dilator with ease," yet in 1886 he had to pass a catheter, "on the average, twenty times in the twenty-four hours." His condition became so bad that suprapubic cystotomy was performed on April 29, 1886. In April, 1887, he walked into Sir H. Thompson's rooms, "looking the picture of health."

"Owing to the dread of urine infiltrating the tissues, he wore a silk web, gum-elastic tube, which connected the interior of the bladder with an ordinary urinal attached to the leg."

To the great advantage of digital exploration was soon added the sense of sight; and whether we give credit to Nitze or Leitar for the introduction of the cystoscope, or divide the honors between them, we cannot but recognize the immense value of the instrument which enables us to explore the cavity of viscus as perfectly as we may examine the mouth.

A prostatic hypertrophy may prevent the introduction by the urethra of the cystoscope, but in doubtful cases an exploratory cystotomy and the introduction of the cystoscope through the wound are not only justifiable, but demanded.

Casper, of Berlin, like other surgeons, wishing to avoid the hemorrhage which occasionally attends prostatectomy, has tried to bring about a diminution of the enlarged prostate by passing a continuous current through it, the negative pole being thrust into its substance through the rectum. Of the two cures effected, one was produced at the expense of a fistula—not a very agreeable outlook. In cases of organic stricture I gave electrolysis a fair trial, but, failing to get any good results, I do not fancy the treatment in prostatic hypertrophy.

White, of Philadelphia, in 1893, suggested castration. He writes: "It occurred to me some time ago, if the analogy between uterine fibro-myomata and prostatic overgrowth was a real one, castration might have the same effect on the latter that oöphorectomy has upon the former, and cause a shrinkage or atrophy which would result in practical disappearance of the obstruction." The operation is on its trial; so far it seems to have given good results. In one case, however, in which I performed the operation, the patient became melancholic in a few months. After such an experience I naturally give some other method the preference. Ligaturing the internal iliac arteries, as suggested by Biers, was performed for enlarged prostate by Meyer in 1894. "The operative technique was, however, unfavorable, being productive of

recurrent hemorrhages from the left iliac, necessitating ligature and amputation of the foot for gangrene."

There are, however, a large number of old and debilitated patients who cannot with any prospect of success submit to either prostatectomy or castration, and to whom the idea of carrying a urinal on the person is hardly less dreadful than death. As in the operation of ovariotomy, so in that of castration, melancholia will follow in a small percentage of cases, and prostatectomy is sometimes attended with alarming hemorrhage; occasionally the operation is rendered futile by various forms of sub-urethral prostatic growths—a complication which demands special operative measures for its relief. Incision of the *vas deferens* is as yet on its trial, and until we get more information on the results obtained by the operation we cannot form an opinion on its value.

The sufferers are happily not without the means of relief; for them there is an ideal operation, easy of performance, and practically free from risk—I refer to the formation of an anterior artificial urethra as was devised, and the operation performed, by our distinguished ex-President, Dr. Hunter McGuire, which operation, in May last, I performed on a poor house-painter named Reilly, suffering from prostatic retention of urine, who came under my care in the Whitworth Hospital, Drumcondra. For years he had been suffering from dysuria, and from time to time he had complete retention, which a local medical practitioner relieved by passing a catheter. Latterly the passing of the instrument became very difficult, and finally, his attendant having failed to pass the catheter, the man came under my care. He was in intense agony, and through the thin abdominal walls the outline of the bladder—which reached as high as the umbilicus—could be easily made out. He was aspirated, and 65 ounces of urine drawn off.

For the following four days he was aspirated night and morning, and put on an acid quinine mixture, and saccharine was substituted for sugar in his food. Thoroughly weary of the life he was leading, he asked me to do something to relieve

him from these attacks of retention. I told him that it was possible to get free of them, and he consented to an operation. Having thoroughly cleansed the part, and following Dr. McGuire's directions, as published in the *Transactions of the American Surgical Association*, I began my incision three inches above the upper border of the symphysis pubis, cutting vertically down to the bone, and laying bare the linea alba. My next incision, passing through the linea alba, was three-quarters of an inch shorter than the cutaneous one, the shortening being made at the expense of the upper end of the wound. Still keeping in the median line, I separated the tissues with the handle of the scalpel until I came on the transversalis fascia, which I divided. The bladder now bulged into the wound, and was secured by two long-handled tenacula, and slit for almost an inch between them. My finger followed the knife very quickly, for there was no bag in the rectum, and the walls of the bladder were as thin as tissue-paper, the tenacula coming through them when the slightest traction was made. About 20 ounces of urine flowed out. A soft-gum catheter was now introduced, and I sewed up the cutaneous tissues with three deep and three superficial catgut ligatures, leaving an opening at the highest point of the wound of half an inch in length. The following day I removed the catheter and placed a large pad of absorbent cotton over the wound.

For nearly a month the urine dribbled through the superior opening of the wound, and the patient began to think that his last state was worse than his first. Gradually, however, he began to gain control over his bladder, and now (November 1st) almost six months after operation, he is pursuing his work daily, finding no inconvenience from the wound, which he keeps stopped with a little plug of cotton wadding. He is able to retain his urine for four or five hours during the day, and has not once to rise during the night. He expels the stream of urine some feet from his body, and is free from any urinous smell. Since the operation he has gained in flesh, eats well, sleeps soundly, and is very happy in the con-

sciousness that the agony of retention cannot occur to him again.

From the digital examination of the bladder I found the prostate to project almost to the posterior wall of the viscus in a saucer-like body, concave on its superior surface from side to side and from before backward; its under-surface was convex and fitted like a little lid over a vesical fossa. On raising up the enlarged prostate I found it could be readily applied to the anterior wall of the bladder, and closed the urethral orifice as a cap.

Without one unpleasant symptom the case made a good recovery, and he left the hospital six weeks after admission.

The points of interest in the case were the peculiar shape of the prostatic hypertophy, its flexibility—almost rubber-like—and the extreme thinness of the walls of the viscus.

The operation is, I think, the first of its kind done in the three kingdoms; and certainly for facility, ease, and effectiveness it is superior to any known to me. No blood is lost, all the incisions being through extravascular tissues; the risk to the peritoneum is more imaginary than real, for if the membrane is met it can readily be avoided; it is quickly performed, and is unaccompanied by shock.

As this was the first case of McGuire's operation done in this country, and as it has been highly approved of by many distinguished surgeons who either were present or examined the patient since the operation, I thought it would not prove unacceptable to the Southern Surgical and Gynecological Association. To me it appears more generally useful than any other urinary vesical operation I know of, and it has the enormous advantage of being capable of performance on the very old, very feeble, and the very nervous—a great advance in surgery, worthy of the home of McDowell and Marion Sims.

SOME METHODS IN HYSTERECTOMY.

By Joseph Price, M.D.,
Philadelphia, Pa.

No operation in the whole range of surgery requires more endurance, more courage, surgical nerve and skill in its right and successful performance than hysterectomy. No other has required the same earnestness of endeavor, the same bold persistence of argument and effort to establish it as a legitimate and justifiable procedure. We are all familiar with the opposition and severe criticism the pioneers in ovariotomy had to encounter and overcome. There would seem to be some explanation and excuse for this. It must be remembered that the light by which the earlier abdominal surgeons worked was a very meagre one. All alike shared in a common darkness; they had to venture out from the crowd and with a splendid courage do that which never before had been done; they had to combat the ignorance and prejudices of the profession, and the yet stronger prejudices and deeper ignorance of the non-professional.

Had the same mortality attended the early ovariotomies that attended the first ventures in hysterectomy there would have been a longer period elapsed than forty or fifty years between the first successful ovariotomies and the date of the revival of the procedure.

The pioneer steps in hysterectomy were rather the result of accident or of errors in diagnosis, and in very many instances the procedure was abandoned; many were left uncompleted. The accidents to bladder, ureters, and surrounding viscera favored a high mortality and greatly discouraged the early operators. The natural history of hard growths received but

little careful study and consideration. Pelvic surgery was not practised by the older ovariotomists; they all waited for tumors to become intra-abdominal; while they remained in the pelvic basin they would not touch them. Large growths were considered from a mechanical standpoint and not from a purely surgical one. The ligature of all vessels and the clean extirpation of the uterus and its burden are of late development. Pelvic surgery for a great variety of complicated diseases has done much to perfect ovariotomy and make possible hysterectomy for all diseases of the uterus. Both vaginal and supra-vaginal hysterectomy has been most largely practised by those who have given pelvic surgery most attention. They are the men who have contributed the most to perfecting the procedure. We will bring our own surgical understanding of hysterectomy, and the rules directing and governing the procedure, within clearly defined limits.

Abdominal hysterectomy is the *one* indicated procedure in all cases of intrauterine malignancy where vaginal portions of the cervix are not involved: in all cases of uterine malignancy complicated with tubal and ovarian disease, and in cases of uterine fixation antedating the malignant development. Hysterectomy, vaginal or supravaginal, should be a simple, direct, and complete operation in every detail. It is easy of application, and should be perfect in its technique from an anatomical and surgical standpoint. Where the operation is done with good surgical judgment and skill there will be comparative immunity from all risk of dangerous hemorrhage and avoidance of sepsis. The method of procedure successful experience recommends as safe, the most satisfactory and complete in its results, is extirpation by lateral incision; vertical incision of the posterior vaginal fornix, circular incisions of vagina to the bladder, and approximating incised vaginal walls to and matching peritoneum, complete the simple procedure. This is the procedure with which others as well as myself have met with the best success.

It is not my purpose to attempt to make converts to this or any other special method. Every man should do his work in the way he can do it best, with the one end in view—the sav-

ing of life. Certainly that method should be used in which the surgeon is the most skilled in the use, which for him furnishes the best results. The exercise of surgical intelligence and dexterity is needed in all. A method is not to be condemned because a few men have failed with it—that they might do with any and all methods. The man behind the method has very much to do with its success.

Operations for malignancy by the upper method of dealing with omental and other adhesions lessens the risk of post-operative troubles and early recurrence. In all operations for malignancy the ovaries and tubes should be removed; it is an imperfect operation without it. The leaving of the ovaries sometimes results in the growth of small tumors necessitating an additional operation. The toilet should be perfect. If the operation has been complicated by pus accumulations in tube and ovaries, with universal adhesions, irrigation followed by glass drainage will give the best results. Drainage should be used in all cases where the adhesions are extensive, as oozing of blood and serum may be very free.

It has been a very common confession of surgeons, when they lost a case, to charge the fatal result to their failure to use drainage. The upper method is always the cleanest and the easiest kept clean. The risks of contamination are less, and every danger associated with a hysterectomy are minimized. It is important that we bear in mind the altered anatomical relations of the bladder and ureters in the detachment of the vagina from one or the other side. From the vaginal side the bladder is pushed up and the ureters are shortened and pushed toward the pelvic bones. In the upper operation the bladder is pushed down, the ureters are elongated and hug the cervix closely. Prolonged experience, the accumulated practical knowledge of a large number of operators, have established the preference for the upper method for the removal of fibroids.

Keith, in his very first hysterectomy, found a large pus-tube, which he dissected out. Had this operation been done the vaginal way, by morcellation, it would have been a failure; as it was, it was a completed hysterectomy with recov-

ery. Morcellation, with a mortality of one in seven, cannot certainly be said to offer any very strong claim to our consideration. Such a mortality does not compare favorably with the much-abused extraperitoneal operation with the Koeberlé or elastic ligature.

I have no statistical reason for complaining of any one of the four methods—intraperitoneal amputation, extirpation, supravaginal extraperitoneal, or vaginal extirpation. My results in all have been altogether satisfactory from the standpoint of recoveries. No method of operation for the removal of the hard tumors of the uterus, primary or final, has given the pleasing results given by the extraperitoneal method of operating. The very class of tumors in which some operators prefer the vaginal method, the small or pelvic-bound, are the most dangerous. The fixation is quite general, the appendages commonly diseased and universally adherent. The enucleation of such a tumor and fixed appendages should be from above downward, the planes of cleavage running to the vagina and uterus; by the lower enucleation the cleavage is into dangerous structures—bowel, bladder, and large vessels.

More accidents, fistulæ, injuries to large and small bowel, have occurred in the hands of a few Continental operators by their new vaginal methods than have occurred in the practice of the whole English and American professions by the suprapubic method. The number of visceral lesions recorded, unrecognized primarily and never repaired, make up damaging testimony against their methods. By the upper procedure all lesions due either to accident or pathological conditions or complications are of easy recognition and can be carefully repaired. The removal of healthy tumors free from complications is the easy work of our specialty. But the French proverb, "It is the unexpected that occurs," has a close application to many of the cases that come into our hands.

The history of very much of our abdominal work is that of unanticipated complications: The difficulty is not in opening the abdomen—the merest novice can do that. The first difficulty is in determining what you open for, and the yet greater difficulty comes in dealing with the unexpected, the

complications of which you can know nothing until you are within the abdomen with your fingers; it is then nerve, skill, and dexterity are put to the test. In all cases the history and objective signs should guide the operator as to the safest method of operating. And he should be prepared for whatever he may find, and not permit the case to be "called off" until he has exhausted every resource of his surgery; he should not fall back on the newly-coined, unsurgical term "inoperable." Such a word as "inoperable" should not find place in our surgical lexicon. Surgically regarded, it is mischievous in its significance. It embodies a confession that gets abroad and destroys confidence. It is an admission of weakness. They are very exceptional cases which our best surgeons admit to be beyond the possibility of surgical relief. In about all, timely and careful work will prolong life. Within the last two years I have done eight operations refused by a professor in one of our medical colleges—one who teaches gynecology and *inspires the courage* needful in the work. Of these eight cases five recovered; of the three that died one could have been saved by more skilful and careful nursing and better environment. There is a speculative phase in these refusals. To refuse the desperate cases and select the easy enable the operator to make a good showing of recoveries. The three deaths occasioned me the loss of a number of favorable cases who were influenced to go elsewhere.

Careful study of the reported work of experienced and successful operators will furnish all the evidence needed of the numerous unexpected complications encountered, the dealing with which requires promptness, quick, intelligent judgment, courage and persistent effort until the relief from all complications, injuries, and accidents is surgically complete. To again refer to Keith: in his second hysterectomy he found the tumor covered by enormous veins firmly attached to the right iliac fossa, right lumbar region, and to the abdominal wall a little below the umbilicus. But I need not repeat the history of complications met with. The surgery of the broad ligaments and bladder is always of sufficient importance to drive the successful operator to the use of the upper method.

SURGICAL TREATMENT OF INGUINAL HERNIA.

By C. Deaderick, M.D.,
Knoxville, Tenn.

The normal inguinal canal in the average-sized man is about an inch and a half long and extends obliquely downward and inward parallel with Poupart's ligament and about half an inch above it; it communicates with the abdominal cavity by means of the internal inguinal ring, and ends below in the external inguinal ring; it is bounded in front by the aponeurosis of the external oblique muscle in its entire length, and in the outer third by the tendon of the internal oblique; behind by the conjoined tendon of the internal oblique and transversalis muscles, the triangular ligament, and the transversalis fascia. Oblique inguinal hernia follows the course of this canal, while in direct inguinal hernia the conjoined tendon and transversalis fascia are forced directly through the external ring and form part of the coverings of this variety of hernia.

The cases of hernia which require surgical interference are usually those which cannot be reliably retained by a truss, and in this class of cases we find the inguinal rings and canal enormously enlarged, the internal ring expands in a downward direction, and the external ring upward, so that we sometimes find the canal shortened to only the thickness of the abdominal walls. What we want to attain by our surgical procedure is to reconstruct, narrow, and restore the canal to its normal size and position; the oblique direction of the inguinal canal is an exceedingly important point to be attained, for it is this that enables it to resist internal abdom-

inal pressure. In its perfect condition it acts something like the orifices of the ureters in the bladder, the more distended the bladder becomes with urine the more firmly do the orifices close.

To reconstruct and narrow the inguinal canal and yet not occlude it, so that the circulation and function of the spermatic cord may be impaired, to give renewed strength and vigor to the parts involved, so that the abdominal viscera will be reliably retained in the abdominal cavity and not allowed to again enter the inguinal canal, requires a delicate adjustment of means to ends, but fortunately for the thousands of suffering truss-bearers, and others past the services of the truss, who go hobbling around with half the contents of their abdominal cavities protruding, those means and ends are at hand, and the cure of these old and aggravated cases has at last become a practical reality.

During the past ten years much ingenuity has been displayed in efforts to secure the best, safest, and most reliable means of radical cure, and, compared with the most approved methods now in use, the old plan of subcutaneous injection of irritating liquids, suturing, etc., seem mere child's-play. I shall not occupy your valuable time by an attempt to describe these various methods; there are several operations which are good and efficient, but I rather like Marcy's plan the best. The details of the operation are as follows:

Have plenty of aseptic sponges and towels, use nothing near the seat of the operation which has not been thoroughly sterilized, shave clean the region to be operated upon, scrub the surface well with soap and water, wash it with a 1 : 1000 bichloride solution, and finally with ether. Lay a piece of aseptic gauze over the abdomen and thighs, except about the region to be operated upon, and over this place the towels wrung from a 1 : 1000 bichloride solution.

During the operation be very careful that strict asepsis is maintained, use no water that has not been thoroughly sterilized by boiling, and keep your instruments, ligatures, suture, etc., immersed in carbolized water.

Begin your incision over the internal inguinal ring and extend it downward over the inguinal canal to a length sufficient to admit of free manipulation and view of the parts. Do not waste any time in an effort to differentiate the layers composing the coverings of the sac of the hernia, for often they are too much changed to be easily recognized; but carefully divide the fascia upon a director; the inguinal canal is laid open up to the internal inguinal ring, but not through the ring. The sac is opened and loosened from attachments, drawn down, tied as high up as possible, cut off close to the ligature, and pushed up into the abdominal cavity. The spermatic cord is then gently lifted, carried upward toward the median line, and held there by an assistant; a strong, full curved Elliot needle, or Marcy's needle, threaded with kangaroo-tendon or other suitable suture, is now passed through the posterior portion of Poupart's ligament on the outer side and carried toward the median line, to emerge from behind forward, through the thick aponeurosis of the transversalis muscle and transversalis fascia, care being taken not to wound or interfere with the epigastric artery; the needle is again inserted about one-third of an inch higher up than its point of exit, and made to traverse the tissues, emerging one-third of an inch above the first point of entrance, the needle is removed and a new tendon inserted. Stitches are repeated in this manner, about one-third of an inch apart, until the internal ring is closed from below upward against the cord; the loose ends of the sutures are now firmly drawn, tied, and cut short. The cord is now laid carefully back in position, the needle is again introduced from without inward, through Poupart's ligament and at the upper end of the wound and made to pass through the firm muscular and tendinous structures upon the inner side of the canal, and enough of these sutures are taken to cover the cord and restore the external inguinal ring; these stitches are drawn close, tied, and cut short; the skin is then stitched with fine kangaroo-ligament by a continuous buried suture, the ends are drawn, and the edges of the skin brought closely together; the wound is painted over with iodoform collodion, and when this is dry

the two ends of the thread are cut short; if the wound is aseptic, this dressing will keep it so. A pad of sublimated gauze, rubber cloth, and absorbent cotton is placed over the wound and the whole held in place by a figure-of-eight bandage. The patient is kept constantly upon his back for at least three weeks; by this plan of operating there are three lines of sutures; the deep line restores the posterior portion of the inguinal canal; the middle line reforms the anterior portion of the canal and unites all of the tissues between the spermatic cord and the skin. All of these lines are buried; sutures are left in position to be finally carried off by absorption.

The above is Marcy's operation slightly modified, the modification consisting in the different manner of applying the two deep lines of sutures and in closing the hernial sac. Marcy uses a continuous double suture in the two deep lines, and in closing the hernial sac his continuous double suture is like that used by the shoemaker in stitching soles on shoes.

My objection to it is that it seems to me to be liable to entirely cut off the circulation of blood from the parts outside of the line of suture, and there is the same objection to its use in closing the hernial sac. The mattress suture, as it is called and used by Dr. Halstead, of Baltimore, does not have this objectional feature, and it is the suture I have employed. If we can believe the testimony of a great number of operators upon the results of work done according to the improved methods, we may safely render the verdict that inguinal hernia, in its most aggravated form, has been and is being safely and permanently cured.

Dr. Marcy, of Boston, states that he has recently collated three thousand cases of hernia operated upon by various men of experience in this line of surgery; that these cases show a positive radical cure of 80 to 90 per cent., and a mortality of less than 1 per cent.

Dr. Marcy also reports one hundred and thirty-three operations made by himself, with six failures and no deaths. My own limited experience with the operation so far has been exceedingly satisfactory, and when my list of cases becomes long enough to make a respectable showing I shall hand it in.

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